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A revision of the Chilean Mesostenini (Hymenoptera: Ichneumonidae)

By

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A REVISION OF THE CHILEAN MESOSTENINI (HYMENOPTERA: ICHNEUMONIDAE)

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INTRODUCTION

Mesostenine Biosystematics

Mesostenines comprise an immense, cosmopolitan tribe of ectoparasitoid ichneumonid wasps. Probably more than 4000 species inhabit South America alone, but less than 15% of these as yet have been described. However, the geographically isolated and taxonomically distinctive Chilean fauna has been better studied than that of other regions and may be more than 50% described (Porter 1967a, b; 1970, 1971, 1985b, c).

These ichneumonids parasitize the immature stages of other endopterygote insects and mostly attack Lepidoptera. Host selection seems to depend not upon taxonomic criteria but upon size and microhabitat criteria. For example, the Chilean Neocryptopteryx metriurus has been reared from psychid Lepidoptera, while the closely related N. hypodyneri oviposits in mud nests of Hypodynerus (Hymenoptera: Eumenidae).

Mesostenini abound in all types of forests from northern coniferous and temperate deciduous to tropical rainforests and subantarctic Nothofagus biomes. The tribe also includes xerophilous taxa which occur in arid habitats from sea level to more than 4000 m, and such species often enter cultivated fields. Particularly notable in this regard are some high Andean Trachysphyrus and Aeglocryptus, which can be collected abundantly in alfalfa and which may parasitize introduced alfalfa cutworms (Lepidoptera: Noctuidae), as well as native Lepidoptera. Knowledge of mesostenine biology remains fragmentary, but many of these common ichneumonids surely will be found of utility in biological control of forest and field pest insects.

Thanks to the generic revisions and regional catalogs produced over more than four decades by the intense and perspicacious labor of Drs. Henry and Marjorie Townes, ichneumonid taxonomy now rests on a more solid worldwide base than does that of any other major family of parasitic Hymenoptera. The Neotropic and Neantarctic faunas (Townes 1966, 1969) have been well elucidated, but Middle and South America are so geographically vast and sporadically collected that thousands of new species and scores of new genera await description. In the present contribution, which revises the Chilean genera and gives keys for the described Chilean species, I recognize 25 genera, of which 11 are new.

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The following diagnosis should allow recognition of the Tribe Mesostenini as represented in Chile:

Clypeus separated from face by a groove; apex of front tibia without a small tooth on outer side; tarsal claws apparently simple, pectinate only on extreme base; areolet pentagonal or quadrangular with intercubiti separated on radial vein, sometimes open apically; 2nd recurrent with only a single weak and translucent spot or bulla, vertical, reclivous, or sometimes inclivous; sternaulus usually (but not always) well defined and reaching 0.5 or more the length of mesopleuron between lower prepectal carina and base of mid coxa; dorsal rim of metanotum without a sublateral tooth or angulation, though often with such a projection on the metanotal face beneath its rim; propodeum usually with more or less well defined basal and apical trans-carinae, the basal often (not always) stronger than the apical, and with faint median longitudinal carinae that often define an area basalis and areola, as well as with lateral longitudinal carinae which are usually vague or strong but irregular; 1st gastric tergite fused with its sternite, without a lateral pit or groove before spiracle, spiracle in most genera behind middle of tergite; gaster (at least in female) elongate to robust fusiform, only rarely compressed toward apex; ovipositor surpassing tip of gaster, its sheathed portion 0.2-4.5 as long as fore wing, its tip with or without a preapical notch, notch when present usually tiny and on a small elevation or nodus, ventral valve with a series of ridges on ovipositor tip.

Biogeography and Evolution

Mesostenine taxonomy must be based on assessment of phaenotypic resemblance. I believe that a subjectively character-weighted and qualitative approach gives worthwhile results but see no objection to quantative, computerized, unweighted analysis when applied by those who possess the requisite mentality and facilities. Cladistic studies remain impossible or misleading in the case of mesostenines and most other ichneumonids. It is undeniable that a taxon based on authenticated synapomorphies will be strictly monophyletic, whereas a group established on symplesiomorphies remains dubious in status until the presence or absence of shared derived features can be confirmed or refuted. Lamentably, most characters employed for ichneumonid taxonomy seem adaptive in nature and reappear with similar polarity again and again in the most diverse genera, tribes, and subfamilies. Doubtless this problem will be rectified some day by an ichneumonologist working in the tradition of Snodgrass or Crampton (no small task for a group with more than 1000 genera and 60,000 species) and by palaeoentomologists competent to reclassify the described Cretaceous and Tertiary ichneumonids and to describe the rich but unworked Baltic Amber fauna. In the meantime, the most vital task confronting ichneumonologists continues to be diagnosis of unpublished species and their accommodation in known genera or in morphologically plausible new taxa. Such work furnishes needed data for ecologists and economic entomologists concerned with biological control. More importantly, it reveals the existence of previously unknown higher taxa and even of whole faunas (e.g., in the Peruvian and north Chilean Coastal

Desert, as discussed by Porter 1983 and 1985 a, b, c) many of which prove congruent with unique biotas in other groups of plants or animals. In this way the ichneumonid taxonomist helps locate natural communities high in endemisms and especially worthy of protection from disturbance of "development" by man.

In the matter of biogeography, much remains to be done in identification of centers of abundance and diversity of various ichneumonid taxa. Some progress has been attained for the South American Mesostenini, and this allows comparison of faunas within and without the continent, as well as permitting identification of dispersal routes. Future work one day will identify centers of origin and permit development of theories as to direction and time of dispersal. (*Dispersal* as used here implies the movement of populations from one geographically contiguous region to another through and into other ecologically favorable or acceptable areas. It does not in these senses include insular saltation, casual and passive transport across major geologic or environmental barriers, or other possible but aleatory movement.)

When discussing the Chilean Mesostenini and other biota, members of at least four major Biogeographic Realms (Megacenters of Abundance and Diversity) must be considered:

(1). *Neantarctic Realm*: This zone embraces Chile from Atacama Province south to Tierra del Fuego and the subantarctic islands, as well as the Patagonian Steppe of southern Argentina and a few Chilean localities east of the Andes. Neantarctic elements also are strongly represented throughout the Andean Puna (mostly between 3-4000 m) in north Chile, northwest Argentina, Bolivia, Perú, and southern Ecuador. The southeast Brasilian highlands also have a partly Neantarctic biota, left behind as the last Pleistocene glaciation receded. The greatest concentration of Neantarctic biota is in the Chilean Region, dominated by *Nothofagus* forest south of 37 South Latitude (with overlap into Argentina south of 40 South Latitude). Of the 25 mesostenine genera that occur in Chile, 8 are endemic to the Chilean region and best represented in *Nothofagus* forest: *Periplasma*, *Xiphonychidion*, *Sciocryptus*, *Dochmidium*, *Caenopelte*, *Nothischnus*, *Chilecryptus*, and *Araucacis*. At the specific level, there are 42 mesostenines in the Chilean Neantarctic and only two of these are reported from outside central and south Chile and adjacent Neantarctic habitats. One is *Oecetiplex borsani*, which reaches the southern edge of the Neotropics in Subandean Desert near Mendoza, Argentina. The other, *Xylacis echthroides*, extends north through the Subandean Desert into similar habitats below La Paz, Bolivia. The Chilean Neantarctic thus shows notable endemicity. Much of its biota, particularly plants and insects, occurs nowhere else.

(2). *Neotropic Realm*: The Neotropic Realm includes most of South America, Mesoamerica, the Sonoran and Chihuahuan Deserts in México and the southwestern United States, as well as the Lower Río Grande Valley of south Texas, south Florida and the Florida Keys, and all the West Indian islands. A considerable and apparently relict Neotropic biota occurs throughout the eastern United States from Massachusetts to eastern Kansas or Nebraska and from north Florida, along the Gulf Strip in particular, as far west as the more humid parts of Texas.

The Neotropic is the major biota of Middle and South America, containing thousands of genera and scores of thousands of species. This is primarily a wet forest assemblage adapted to warm but not necessarily frost-free conditions. However, the Neotropic includes several arid or semiarid subregions in addition to the North American deserts already mentioned. Some of these are the Argentine Chaco and Subandean Regions, the Peruvian and North Chilean Coastal Desert, the Brasilian Cerrado and Caatinga, as well as the Provincia de la Sabana and the Provincia Guajira in Venezuela (Cabrera and Willink 1973).

Characteristic permeant Neotropic distributional types include genera which range from the eastern United States to Northern Argentina (the mesostenines *Baryceros*, *Mallochia*, *Chromocryptus* (Porter 1985a), *Diapetimorpha*, *Lymeon*, *Pachysomoides*, *Acerastes*, *Polycyrtidea*, *Polycyrtus*, *Messatoporus* and *Agonocryptus*, among others). There is also a component that attains southern Arizona (e.g., *Whymperia*) and a vast number that first appears in the Sierras Madre of northern México or Arizona and extends to Brasil or Argentina on the south (such mesostenines as *Whymperia*, *Glodianus*, *Latosculum*, *Rhinium*, *Toechorychus*, *Bicristella*, and *Cestrus*, along with the ephialtines *Zonopimpla*, *Ganodes*, *Epirhyssa*, and the aberrant xoridine subgenus *Periceros*, the pluviselvatic porizontine *Nonnus*, and such ichneumonines as *Oedicephalus*, *Dilopharius*, *Cryptojoppa*, *Joppocryptus*, *Microsage*, *Joppa*, *Lichmeres*, and *Eurydacus*). There are also Neotropic genera apparently confined to restricted parts of Middle or South America, but these are comparatively exceptional and are as likely to represent gaps in collecting as true geographic disjunction. The Neotropic biota shows remarkable continuity between northern México and subtropical Argentina, Paraguay, and Brasil. This extraordinary uniformity refutes assertions that South America was an isolated continent until the Pliocene. It demonstrates that the Middle American land bridge between South and North America was closed on and off during much of the Tertiary after South America's separation from Gondwanaland. It reveals the varied Neotropic sub-biota of today's eastern United States, not as post-Pleistocene invaders, but as Tertiary relicts. They are relicts, most probably, of a once flourishing North American Neotropic biota. For all we know, numerous genera now centered in South American may have originated during the Tertiary in North American subtropical moist forests. In any event, the Neotropic biota is restricted to the New World, currently predominant in Tropical America, and (within these bounds) offers more endemic taxa than any other Biogeographic Realm, with possible exception of the Oriental Tropics.

The northern, almost rainless desert and Prepuna (to more than 2000 m) in Chile's Tarapacá Province (17-21 South Latitude) pertain to the Peruvian Coastal Desert Region of the Neotropic Realm (along rivers, in oases). Their fauna is depauperate and includes only one Neotropic mesostenine genus, *Cyclaulus*, represented by *C. eremia*, which occurs in lowland fertile river valleys from the Valle de Lluta north of Arica, Chile, to similar habitats near Lima and Trujillo, Perú. *Cyclaulus* otherwise inhabits east Andean Cloud Forests from Colombia to northwest Argentina. *Cyclaulus eremia* appears to be a survivor of the west Andean Cloud Forest and Rain Forest that existed in warmer and wetter early Tertiary epochs, when the subequatorial Andes were lower than now and thus created a less effective rain shadow, while Antarctica remained free of ice, and there was no Humboldt Current to deprive the Peruvian and Chilean coast of tropical Pacific moisture.

Finally, I point out that there are only a few Neotropic relicts or invaders within the confines of the Neantarctic Biogeographic Province (far fewer, despite geographic propinquity, than in far-off eastern North America). Among ichneumonids, there are no mesostenines but Neotropic ephialtines (*Calliephaltes*) and ichneumonines (*Diacantharius*, *Carinodes*), as well as other Hymenoptera (Eumenidae: *Pachodynerus*; Sphecidae: *Trachypus*; and Pompilidae: *Pepsis*) do occur in Neantarctic Chile. The Neantarctic Biota is mostly endemic, shared with Australia, or of Holarctic affinities. The Neantarctic is most remarkable for the Neotropic elements it lacks: rhyssine ichneumonids, the huge tropical American complexes of Mesostenini with a small areolet and countless distinctive ichneumonines (*Joppa*, *Macrojoppa*, *Lusius*, *Oedicephalus*, the Acanthojoppini, and hundreds more) not to mention other Hymenoptera, including social Vespidae, euglossine bees, and stingless bees. Even more spectacular are gaps in the vertebrate element--no boid, elapid, or crotalid snakes and only two species of Colubridae, no terrestrial or freshwater turtles. Evidently, the forces and barriers that have shaped the biota of temperate Chile have acted more potently and enduringly than those which demark the Neotropic from the Holarctic.

(3). *Holarctic Realm*. This region extends through the temperate and cold latitudes of North America and Eurasia. Its biota is centered in Temperate Deciduous and Northern Coniferous Forests but has reached deep into Andean and other parts of South America. Penetration of Holarctic elements into and across the New World tropics has been facilitated both by the high corridor of temperate habitats provided in the Sierras Madre and the Andes and also by periods of generally cooler climate that occurred from time to time in the last half of the Tertiary and with great severity during Pleistocene glacial maxima. The Pleistocene most likely brought the majority of Holarctic invaders to South America, since it is now known that drastic glacial events over the last two million years substantially altered climates even in lowland Rain Forests and brought extreme cold to the middle altitudes now occupied in many places by tropical Cloud Forest. Many Holarctic plants and animals now common in the Andes as far south as Ecuador and usually represented also in the highlands of Peru, Bolivia, and northwest Argentina, but absent from Neantarctic Chile, probably reached south America in the Pleistocene. These include such plant genera as *Alnus*, *Quercus* (as far as Eduador), *Juglans*, and *Sambucus*, as well as Ichneumonidae in such genera as *Itoplectis* (Ephialtinae), *Cylloceria* (Microleptinae), and the *Transfuga* species group of *Mesostenus* (Mesostenini). Palaeobotanical evidence (Graham 1973) suggests that there was also an important cold pulse during the Miocene. Holarctic genera that often occur in Neantarctic Chile and/or which have reached and usually diversified in the lowland Neotropics may have been pushed south by the Miocene cold or during even earlier climatic fluctuations. This category is likely represented by the plant genera *Salix* and *Celtis*, by lepidopterans in the family Pieridae (*Colias* and the *Tatochila* complex, closely related to the Holarctic *Pieris*), by the entire ichneumonid Subfamily Diplazontinae, by ephialtine ichneumonids, such as *Coccygomimus* of the *Aequalis* and *Sodalis* groups along with numerous species in the genera *Tromatobia*, *Clistopyga*, and *Polysphincta*, by the mesostenine genus

Ischnus (avoids Chile but widespread in Neotropical South America), and by the apid genus *Bombus* (one endemic species in Neantarctic Chile, another in the Amazon Basin, and scores in the Puna and Páramo from Colombia to Perú, as well as several endemic species of sub-tropical Argentina and Brasil).

The only indubitably Holarctic Chilean mesostenine is *Mesostenus cuzcensis*, which reaches the western Puna of Tarapacá Province and belongs to the *Transfuga* species group, whose members (e.g., the North American *M. thoracicus*) form a conspicuous part of the North American and Eurasian ichneumonid fauna.

However, many of the endemically Chilean or South American trachysphyroid genera probably have their closest relatives in the Holarctic and probably differentiated from old northern ancestors whose arrival in South America occurred well before the end of the Tertiary. Such genera may include *Cosmiocryptus*, *Xiphonychidion*, *Chilecryptus*, *Araucacis*, *Trachysphyrus*, *Aeglocryptus*, *Neocryptopteryx*, *Itamuton*, *Oecetiplex*, *Phycitiplex*, *Xylacis*, and *Myrmecacis*. Most of these perhaps derive from the same ancestral stock as the Holarctic *Itamoplex*, but the world mesostenine genera remain so poorly understood phylogenetically that opinions as to their relationships can be no more than conjectural.

(4). *The Australian Realm*. As emphasized by Müller (1986:40-1), "The south Pacific southern beech forests (*Nothofagus*) of Chile, New Zealand" and Australia "today contain a fauna which probably already existed during the Tertiary and dispersed . . . with the forests over the Antarctic." This temperate forest pathway remained open both to Australia and South America via land connections with Antarctica that persisted through the Cretaceous and into the early Tertiary.

Not surprisingly, transantarctic relationships have been documented for a variety of plants and numerous insects, including the labiine ichneumonid genera *Labium*, *Certonotus*, and *Labena* (Townes 1969, Porter 1981). More recently, Gauld (1983) has pointed out the existence of a vast Australian and Tasmanian mesostenine complex most of whose members seem closely related to or congeneric with *Anacis*, a mesostenine genus of Neantarctic Chile and of the Andean cordillera at about 1000-2800 m altitude on eastern slopes from northwest Argentina to Ecuador. Related to *Anacis* are several other Neantarctic genera (*Caenopelte* and *Dochmidium*) as well as some tropical Cloud Forest inhabitants principally of Colombia, Eduador, Peru, and Bolivia (e.g., *Biconus*, *Cryptopteryx*, and possibly *Hypsanacis*).

In addition to those genera already mentioned, Chile, and also in some cases other parts of subequatorial South America, has a number of aberrant mesostenines whose affinities seem more than commonly obscure: *Periplasma*, *Sciocryptus*, *Nothischnus*, *Dotocryptus*, *Picrocryptoides*, and *Aglaodina*. These may represent Neantarctic autochthones, relicts of taxa which originated in other parts of South America or in Australia and survived only in Neantarctic confines, or remnants of a biota that once had its center on pre-glacial Antarctica.

The foregoing discussion has mentioned some of the facts and problems, intrinsic and extrinsic, which concern relationships between Chilean

Mesostenini and those of other biogeographic areas. I now refer to distributional patterns of mesostenine genera and species within Chile. For this purpose, I employ (with some modification and simplification) the "entomofaunal regions" first proposed by Luis E. Peña (1966). Peña's principal goal was to explain the biogeography of Chilean tenebrionid beetles, but this remarkable naturalist's close familiarity with all parts of Chile and his vast knowledge of the whole Chilean biota make his conclusions valid for the greater part of his country's fauna and flora. My application of Peña's scheme to the Chilean Mesostenini is summarized in the following outline (see also Fig. 19):

I. NEOTROPIC CHILE.

1. *Northern Desert Region*: biota developed only in fertile river valleys that traverse the essentially rainless desert below 2000 m. The zone includes most of Tarapacá and Antofagasta Provinces. Characteristic flora includes *Geoffroea*, *Prosopis*, *Baccharis*, *Grindelia*, *Tessaria*, *Atriplex*, *Schinus*, and *Equisetum*.

The mesostenine fauna has but one species, *Cyclaulus eremia*, so far collected only in the Valle de Lluta just south of the Peruvian border near Arica.

II. THE WEST ANDEAN PUNA.

1. *Northern Andean Cordillera*: This region extends over much of north Chile between 3-4000 m and south to 27° South. I know it only between Putre, Socoroma, Belén and Tingnamar near Arica. Here the vegetation consists of steppe and sparse thorn scrub, with numerous cacti (*Trichocereus* and others), a varied flora of grasses, diverse composites with several *Baccharis* spp, the loasacean vine *Cajophora*, and one endemic tree, *Polylepis* (Rosaceae) that grows in moist quebradas.

The Puna Mesostenini are comparatively diverse with the following 13 species: *Hypsanacis socoromae*, *Cosmiocryptus weyrauchi*, *C. aricae*, *Aglaodina lasia*, *A. hyperbasa* (Antofagasta), *Trachysphyrus venustus*, *T. carrascoi*, *T. metallicus*, *T. aegla*, *T. escomeli*, *T. agalma*, *Aeliopotes paitensis*, and *Mesostenus cuzcensis*.

Cosmiocryptus aricae and *Hypsanacis socoromae* have been cited only from this region. The other species occur to the north and/or west in the Peruvian, Bolivian, and north Argentine Andes. No species of this group has been reported from farther south in Chile.

III. NEANTARCTIC CHILE. Covers the entire country from about 27 South Latitude in Atacama Province to 54 South in Tierra del Fuego and the subantarctic islands.

1. *Intermediate Desert*. This is the desert of Atacama, especially between Vallenar and Copiapo. Climatically and geologically it seems to form a transition from Northern Desert to the Mediterranean scrub of central Chile. In the intermediate desert there are ravines with cacti (*Copiapoa*, *Horridocactus*, *Opuntia*, etc., as mentioned by Peña) as well as grasses and a few spiny shrubs. Otherwise, the Atacama

Desert seems as lifeless as the Northern Desert, but heavy winter rains every few years bring a burst of ephemeral floration for a few weeks in September. At these times, such plants as *Argylia puberula* (Bignoniaceae), *Nolana* spp. (Nolanaceae), *Calandrinia* sp. (Portulacaceae) and *Cordia dodecandra* (Boraginaceae) explode with flowers. Many of these plants are not confined to the Intermediate or Atacama Desert. No less than geologic and climatic features, they give no hint of the radical disparity between the Atacama entomofauna and that of extreme north Chile. Many of the genera and almost all species do not reach farther north. There are bees of genera such as *Liphanthus* and *Leioproctus*, the strange masarid genus *Gayella*, the eumenids *Ctenocheilus pilipalpus* and several *Hypodynerus*. The apoids, masarids and *Ctenocheilus* range only from Atacama south. the *Hypodynerus* species are trenchantly distinct from relatives in the West Puna of Tarapacá.

The Intermediate Desert Mesostenini are not diverse but comprise three well known species that become more abundant farther south: *Xiphonychidion viduum* (reaches Valdivian Forest at around 40° South), *Trachysphyrus irinus* (reaches Northern Valdivian Forest at 38° South), and *Aglaodina cribricollis* (extends into the wet Valdivian Forest of Aisén Province at about 45° South).

2. *The Central Region*. Under this category I subsume Pena's *Coquimban Desert*, *Central Coastal Cordillera*, *Central Valley*, and *Central Andean Cordillera* Provinces. The Region extends from 29° South to around 37° South. It varies from semidesert in the north to *Acacia caven* Thorn Scrub in the Central Valley, but has many well watered valleys, especially toward the Andean foothills, which support elements of Valdivian Forest, such as the trees *Lithraea caustica*, *Cryptocarya alba*, *Quillaja saponari*, *Peumus boldus*, *Beilschmiedia miersii*, *Schinus latifolius*, *Maytenus boaria*, *Pouteria splendens*, and *Austrocedrus chilensis*. There are also some relict *Nothofagus obliqua* in this zone, northeast of Valparaíso in Parque Nacional "La Campana," a locality which also preserves one of the few remaining natural stands of *Jubaea chilensis*, the only endemic palm of continental Chile (Martínez 1985: 225-6).

Twenty-eight Mesostenini are known from the Central Region, most of them from foothill, wooded valleys, such as the entomologically famous and delightful El Canelo east of Santiago. Only four of these species have been collected exclusively in the Central Region: *Anacis hercana* (El Canelo ca. Santiago), *Chilecryptus rhopalum* (Bosque de los Conservados in O'Higgins Province), *Neocryptopteryx sphaera* (Andean foothills north of Santiago in Aconcagua Province), and *Phycitiplex eremnus* (Aconcagua foothills). The rest are distributed southward: *Dotocryptus bellicosus* (Coquimbo to Magallanes), *D. pedisequus* (Coquimbo to northern edge of the Valdivian Forest), *Xiphonychidion cyanipenne* (Valparaíso and Santiago to Magallanes), *X. atmetum* (Coquimbo to 40° South), *X. horsti* (Santiago to Concepción), *X. stibarum* (Santiago to Chiloé Island), *X. caeruleipenne* (Santiago to Concepción), *X. viduum* (Atacama to 40° South), *Picrocryptoides hesperios* (Concepción), *Aeglocryptus nigricornis* (Coquimbo to 38° South), *Trachysphyrus agenor* (Valparaíso, Santiago and across Andes to Mendoza Province Argentina as well as southward in Chile to near 39° South), *Trachysphyrus irinus* (Atacama to near 38° South), *Aglaodina cribricollis* (Atacama to Aisén), *Anacis rubripes* (Coquimbo to Magallanes), *Chilecryptus* *rhadinus* (Coquimbo to Magallanes), *Chilecryptus tetracanthus* (Coquimbo to Magallanes), *Neocryptopteryx metriurus* (Santiago to Magallanes), *N. hypodyneri* (Coquimbo to about 37° South), *Oecetiplex borsani* (Coquimbo to Magallanes), *Araucacis melanthes* (Santiago to Northern Valdivian forest in Ñuble Province), *A. leptaulax* (Santiago to northern edge of Valdivian Forest), *Itamuton rufitibia* (Santiago to Chiloé and below 40° South across Patagonian Desert to the Atlantic in Argentina), and *Myrmecacis metargas* (El Canelo near Santiago to Chiloé Island).

3. *Valdivian Forest*: Here I include Peña's Northern Valdivian Forest, Southern Andean Cordillera, Pehuenar (*Araucaria* Forest), Valdivian Forest, Valdivian Cordillera, and Aisén Cordillera). This zone comprises the *Nothofagus* Forest in a broad sense. At its northern end, the Valdivian Forest is warm temperate with a hot semi-Mediterranean dry period in summer and abundant rainfall with moderately cool temperatures the rest of the year. This *Northern Valdivian Forest* has a good number of endemic floral species, including *Nothofagus glauca*, *N. leoni*, and *N. alessandri* (Martínez 1985: 227). It also possesses at least two endemic mesostenines, *Periplasma tanaum* and *Dochmidium syntomum*, and (doubtless an artifact of collecting) is the only Chilean region from which *Xylacis echthroides* has been reported. Further south, the true Valdivian Forest becomes more and more a cool temperate Rain Forest with increasingly shorter warm and dry periods in summer and yearly precipitation that may approach 10,000 mm, although with winters whose minima reach only a few degrees below 0° C and with little snow at low altitudes. *Nothofagus*, such as *N. dombeyi*, *N. obliqua* and *N. alpina* also dominate this zone, but there are many other trees and shrubs, such as *Eucryphia* (another Chilean-Australian disjunct genus), *Gevuina*, *Embothrium*, *Desfontainea*, *Fuchsia*, *Berberis*, *Myrceugenella*, *Chusquea*, *Gunnera* and endemic coniferous species in *Podocarpus* and *Araucaria* in addition to endemic genera, such as *Fitzroya*, *Saxegothaea*, and *Pilgerodendron*. The disjunct Pehuenar of Arauco and Cautín Provinces harbors in its *Araucaria* forest, and associated *Nothofagus* and *Chusquea*, two possible endemics, *Anacis varipes* and *Nothischnus riverai*. More generally distributed in Valdivian Forest are *Xiphonychidion nerhysum*, *Sciocryptus lachnaeis* (to Magallanes), *Caenopelte palinorsa* (broadly endemic), *Dochmidium camponotus* (broadly endemic), *Anacis rufipes* (broadly endemic), *A. stangeorum* (broadly endemic), and *A. festiva* (Northern Valdivian Forest to Magallanes). With 24 Central Zone mesostenines that reach at least the northern edge of the Valdivian Forest Region and 12 endemics or near-endemics, this biome harbors 36 species of Mesostenini, the greatest diversity attained in Chile. If it be recalled that there are four additional Neantarctic Chilean Mesostenini known exclusively from the Central Region, it becomes evident that warmer Neantarctic Chile (Santiago to Chiloé) has 41 of the 43 described Neantarctic mesostenines. Since most ichneumonid habitats of the Central Region comprise relict gallery woods with North Valdivian forest affinities, more thorough collecting probably will show that the Central Valley putative endemics range into the northern forest. The most diverse and characteristic Chilean mesostenine fauna thus occupies the northern part of the two major Valdivian Forest regions and seems concentrated between 35°-40° South (i.e., from Talca to Cautín and parts of Valdivia Provinces). In this ecotonal gradient there are habitats both for Central Valley species of mild xerophilic procilivities and for the more hygrophile strictly Valdivian element. Most of this fauna also extends across the

colder and drier Valdivian Cordillera Province (the southern Andes with maximum elevations largely below 3000 m and many passes below 1000 m), and so reaches the western fringe of Argentina between 39°-41° South (e.g., at Pucará and San Martín de los Andes in Neuquén Province and from San Carlos de Bariloche westward in Río Negro Province).

4. *Magallanes Interoceanic Region*. This subantarctic Valdivian woods forms an ecotone between the little known southern Valdivian Temperate Rainforest (Peña's *Southern Pacific Region*) and the Patagonian Steppe. It crosses continental Chile, Tierra del Fuego, and the subantarctic islands between 50° S and 55° S. Rainfall at its western edge may approach 9000 mm yearly but rapidly drops off eastward to 1200 mm and as little as 200 mm at the Patagonian border (Peña 1966: 15-7). The biome is dominated in its wettest areas by the evergreen *Nothofagus dombeyi* but is more widely characterized by deciduous *Nothofagus*, such as *N. pumilio* and *N. antarctica* (Martínez 1985: 229). The Magallanes zone constitutes a ferociously windy and almost summerless refugium, with freezes throughout the year but without the catastrophically gelid temperatures of comparable latitudes in eastern North America and so analogous to southern Alaska. The mesostenine fauna of the Magallanes Interoceanic Region includes three semiendemics (more or less widely shared also with Patagonian Steppe): *Trachysphyrus imperialis* (also represented in Patagonian Steppe north to Neuquén Province of Argentina and across to the Atlantic at Río Gallegos), *T. peñai* (most of Chile and Argentina from 51° South and including the Falkland Islands), and *Itamuton magallanes* (Magallanes Region in Chile and Argentina from Puerto Natales south to Tierra del Fuego with considerable overlap into Patagonian Steppe). The other nine Magallanic trachysphyroids have much wider ranges in north and central Chile south of the Atacama Region: *Dotocryptus bellicosus* (Coquimbo south), *Xiphonychidion cyanipenne* (Santiago south), *Sciocryptus lachnaeis* (Valdivian Forest south), *Anacis rubripes* (Coquimbo south), *A. festiva* (Northern Valdivian Forest south), *Chilecryptus rhadinus* (Coquimbo south), *C. tetracanthus* (Coquimbo south), *Neocryptopteryx metriurus* (Santiago south), and *Oecetiplex borsani* (Coquimbo south, also in northwest Argentine Subandean Desert).

The data given above demonstrate that the whole Chilean Neantarctic Region (essentially the *Nothofagus* zone, dominant or relict) has a remarkably distinctive and strongly coherent mesostenine component. It has 41 endemic species shared, if at all, only with Patagonian Steppe. Furthermore, as already mentioned, the two more widely ranging species reported from the Neantarctic, nonetheless, are restricted to subequatorial South America in semiarid Andean or Subandean Deserts. Within the Chilean Neantarctic there seem to be many very widely distributed species, including six that extend from Coquimbo to Magallanes as well as a number of endemics in the Central Region, the Pehuenar and Valdivian Forests north and south, in addition to some unique species in the Magallanes Interoceanic Province. Future collecting probably will increase the number of precinctive species but almost certainly will reveal that some apparent endemics have much wider distributions than now supposed. The Chilean Neantarctic is a single Biotic Province from 27° South to 55° South and, considering climatic differences from north to south (rapidly increasing rainfall, slowly diminishing minimum temperatures but more rapidly deteriorating maxima), the number of permeants seems remarkable. This is a close-knit, geographically, ecologically, and taxonomically distinctive unit.

5. *Patagonian Steppe*. The Steppe is a cold (average yearly temperature 13.4° C in the north to 5° C southward), dry (100-270 mm rainfall yearly) semidesert whose prevailing flora consists of low grasses and forbs, among which the Compositae are especially diverse (Cabrera and Willink 1973). It covers much of Argentina below 40° South but in Chile appears east of the Andes, extensively in Magallanes and restrictedly in Aisén and Malleco. I have already mentioned one Chilean mesostenine, *Itamuton rufitibia*, that reaches far across Argentine Patagonia, and several others shared between the Magellanic Region and parts of the Steppe (e.g., *Trachysphyrus imperialis*, *T. peñai*, and *Itamuton magallanes*). There is also *Aeglocryptus viridis* (see Porter 1967a: 306-9), which reaches Chile only in Magallanes and in trans-Andean Aisén at Chile Chico. Otherwise, this is the most amply distributed South American trachysphyroid, reported from countless localities between sealevel and 3850 m in Perú, Bolivia, Argentina and Uruguay, with representation in most habitat types except for tropical and subtropical wet forests.

The Patagonian Biota contains many Andean Puna elements of known or apparent Neantarctic relationships. I thus tentatively consider the Patagonian Steppe as a subprovince of the Neantarctic rather than of the Neotropical Realm. Patagonia is a remote and desolate area, which has been little explored by zoologists or botanists. More on-site research will be needed before this region can be decisively placed in either realm or perhaps recognized as predominantly ecotonal.

Biogeographic Conclusions

Chile is known to have 58 species and 25 genera of Mesostenini. In the Neotropic coastal valleys of the Northern Desert there is one species which belongs to a strictly Andean, subequatorial genus, *Cyclaulus*, represented also in the Peruvian Coastal Desert and in Cloud Forests from Colombia to northwest Argentina. Thirteen mesostenines can be cited for the West Puna of northernmost Chile. All of these species are represented in other high Andean localities to the north or east. None occurs in Neantarctic Chile. At the generic level, 6 taxa are represented in the West Puna. *Cosmiocryptus* and *Aeliopotes* range north into Perú and seem endemic to the West Andean Puna and Prepuna. *Hypsanacis* is high Andean between Ecuador and northwest Argentina, with no species in Neantarctic Chile. *Mesostenus* (*Transfuga* group) seems to have about the same distribution in South America as *Hypsanacis* but is also in Middle America, as well as North America and the rest of the Holarctic. *Trachysphyrus* and *Aglaodina* are more or less well developed in the high Andes of Perú, Bolivia, and northwest Argentina but also have several endemic species in Neantarctic Chile. The north and Neantarctic Chilean species in these cases do not seem intimately related and probably have evolved long in isolation. Neantarctic Chile from Atacama to Magallanes and including the Patagonian Steppe has 20 genera. As indicated earlier, 8 of these (*Periplasma*, *Xiphonychidion*, *Sciocryptus*, *Dochmidium*, *Caenopelte*, *Nothischnus*, *Chilecryptus*, and *Araucacis*) occur nowhere else. These endemics include 17 species. The other 12 genera comprise 27 species, of which 24 are endemic, while the remaining three range into other areas of subequatorial South America: *Oecetiplex borsani* being shared with the Subandean Desert of northwest Argentina, *Xylacis echthroides* with the Subandino and Prepuna in Argentina and Bolivia, and *Trachysphyrus agenor* with Mendoza Province in the southern area of the Subandean Desert. The remaining genera have extra-Chilean species or species groups. *Anacis* is by far the most remarkable, with more than 80 Australian representatives, in addition to a series that extends through east Andean Cloud Forests from northwest Argentina to Ecuador. *Picrocryptoides* and *Phycitiplex* have species in the Argentine Pampa, Chaco, and Subandean Desert Regions. *Trachysphyrus*, *Aglaodina*, and *Itamuton* occur also (with greater or lesser penetration) in the montane Chaco, Prepuna, and Puna of Argentina and thence north into the Chilean West Puna and more or less of the Peruvian and Bolivian highlands. *Aeglocryptus* and *Neocryptopteryx* range through almost every Argentine habitat, and the latter invades the southeast Brasilian Selva Paranense, while both genera also have species in the Peruvian West Andean and Central Andean Puna with an additional aberrant *Neocryptopteryx* in fertile valleys of the Peruvian coast. *Dotocryptus* and *Myrmecacis* have a small and distinctive Chilean fauna, as well as rather distantly related species in the Argentina Prepuna, Subandean Desert, Chaco, and subtropical Selva Tucumano-Boliviana. Both also extend across the Chaco and have other species or sets of species in southeast Brasil and adjoining northeast Argentina, with some extension in gallery south as far as Buenos Aires. With the partial exception of *Anacis*, then, those mesostenine genera shared between Neantarctic Chile and the rest of South America are limited to the subequatorial part of the continent, often favor xeric habitats, and show predilection also for mountainous regions, such as the central Andean Cordillera and the southeast Brasilian highlands. Only some *Neocryptopteryx*, *Dotocryptus*, and *Myrmecacis* reach genuinely tropical wet forests at the Brasilian extreme of their distribution. This mesostenine contingent differs strikingly from the main Neotropical element in the tribe, whose diversity falls off even in eastern temperate South America and fails totally in the Neantarctic. These latter abound between 1000-2500 m in high forest diversity centers of the Brasilian Coastal Range, the east Andean Cloudforests, and the Middle American Montane Forests. Their extension into temperate (usually not arid) habitats, though minimal in South America, becomes impressive in the eastern United States with its *Diapetimorpha*, *Lymeon*, *Cryptanura*, *Polycyrtus*, *Messatoporus*, *Agonocryptus* and others, many of which have at most 5-6 species in North America but many hundreds in the diversity centers of South and Middle America.

There is no facile explanation for these biogeographic patterns. Mesostenine taxonomy remains primitive, so that relationships among genera are poorly understood. Huge areas of South America, including such biogeographically significant regions as the Guayana Highlands, never have been collected. Even in well studied areas, collecting most often has not been carried on at all seasons, despite the fact that ichneumonids from the hot to the warm temperate regions are active in every month of the year, often at times (early spring, fall, even winter) outside traditional "collecting seasons." Distribution of mesostenines, therefore, is imperfectly elucidated, so that what now seem to be critical disjunctions in some cases are only accidents of entomological benign neglect.

Some suggestions in the aetiology of this biogeographic puzzle can be offered by way of conclusion.

(1). *Nothofagus*, and perhaps some of its accompanying biota, has been in existence since the late Cretaceous. During those warmer and wetter times the genus thrived in southern South America, Antarctica, and Australia. Break-up of Gondwanaland seems to have occurred latest along the South American-Antarctica-Australia axis. Dispersal among these southern continents thus should have been possible as late as the Eocene.

The "*Anacis* generic group" may have originated and spread at this time. Perhaps it arose in South America, conceivably in Australia, or some of its elements may represent biota of the then unglaciated Antarctic continent. *Anacis*, *Dochmidium*, *Caenopelte*, *Hypsanacis*, *Sciocryptus*, *Nothischnus*, and some north Andean taxa (e.g., *Biconus* and *Cryptopteryx*) should be examined in this context. So should the enigmatic quasi-Nematopodiine *Dotocryptus*.

The Tertiary continued uninterruptedly mild and moist at least through the Eocene, when, moreover, the southern Andes had not yet arisen. At this time subtropical wet forests, similar to today's Selva Tucumano-Boliviana of northwest Argentina, existed in southern Argentina and adjoining Chile down to 40 South or more. The ichneumonids of this forest should have been overwhelmingly Neotropical, with Neantarctic elements confined to what is now Magallanes, Tierra del Fuego, and the Antarctic Peninsula and mainland. Concurrently, some Neantarctic *Anacis* relatives adapted to more tropical forest conditions along what, at the time, must have been a long and gentle ecotone. Some of these, *Biconus* and *Cryptopteryx*, for example, moved well north in South America toward their present centers in Ecuadorian and Peruvian Cloud Forests. Uplift of the southern Andes, plus xerothermic pulses which became frequent in the later and middle Tertiary probably slowed movement of Neantarctic or "*Anacis* group" mesostenines northward both along the Pacific coast and through central Argentina. *Anacis* and its relatives in the New World primarily inhabit cool, wet forests either in the Valdivian part of Chile or in east Andean Cloud Forests of the Neotropic. Their best chance for northward dispersal probably came early, in the first half of the Tertiary, when some few apparently invaded and adapted to the subtropical wet forests existing then immediately north of their original Antarctic and sub-Antarctic distributional center. Farther north, around 30 South Latitude, they would have entered a semideciduous and seasonally dry tropical forest, the prototype of today's Chaco and Subandean Desert (Solbrig 1976). Both the wet and seasonally dry forests almost certainly gave passage to relatively few *Anacis* group taxa, since their climate would have opposed an abiotic ecological barrier to these wet-temperate insects, and their presumably Neotropic mesostenine fauna would have constituted a biotic obstacle of preempted niche space. Nonetheless, some Neantarctic mesostenines did cross the wet and semideciduous subtropics and reached latitudes where the Andes already were well formed and furnished climatically ideal cool montane forests with year-round precipitation. As already mentioned, a secondary new World radiation of *Anacis* occurred here, as well as the evolution of new genera, such as *Biconus*, *Cryptopteryx* and *Hypsanacis*. Concurrently, a few mesostenine genera possibly related to *Anacis* reached and established themselves in the highlands of southern Brasil (just as did the trans-

Antarctic ichneumonid genus Labium and the gymnosperm tree Araucaria). Among these, we may be able to include Dotocryptus (Dotocryptus boreas Porter 1973 from Eduador now is deemed to belong in an undescribed, unrelated genus), Neocryptopteryx, and Myrmecacis (both as likely to be of Holarctic as of Neantarctic origin). In any case, extra-Chilean radiation of the Anacis group was comparatively minor in contrast to the extensive speciation that occurred among these mesostenines in the South American Neantarctic. The reason for this probably can be ascribed again to niche-space preemption by Neotropic mesostenines, which have had continual access to the Andean Cloudforests and Brasilian Highlands from the early Tertiary through the severest Pleistocene glaciations. In constrast, late Tertiary desertification and Pleistocene cold pulses extirpated from Neantarctic Chile most of the Neotropic ichneumonids which surely once existed there (from 40 or 45 South Latitude northward). This left more cold tolerant Neantarctic and Holarctic mesostenine stocks isolated in Chile by mountain and desert barriers but ready to expand spatially and evolutionally when conditions ameliorated during warmer and (southward) wetter interglacials.

(2). Old Holarctic elements seem discernable in such genera as Xiphonychidion, Trachysphyrus, Aeglocryptus, Aeliopotes, Aglaodina, Cosmiocryptus, Neocryptopteryx (most likely), Chilecryptus, and in Itamuton with some of its associated smaller genera. These appear related to such common Holarctic mesostenines as Itamoplex, Buathra, Meringopus, and Caenocryptus or to North American Sponoran taxa currently shared with South America (Compsocryptus, Lanugo, and Joppidium). Most of these genera include species groups adapted to semiarid habitats and to altitudes of 3000 m or more. Consequently, the same mid to late Tertiary uplift of the Andes in southern South America and the same contemporaneous development of rainshadows and onset of worldwide xerothermic climatic outbreaks, which discouraged northward extension of hygrophile Neantarctic biota, would have favored expansion of dry and cold-adapted Holarctic elements into South America. Such movement mostly is blocked during the present interglacial by gaps in the mountain chain between Panamá and Colombia. It probably remained shut through the whole Pleistocene, except for those genera (such as Compsocryptus) that could take advantage of some of the lowland thorn scrub corridors which became extensive in the more extremely xerothermic interglacials. Before the Pleistocene and back at least to the Miocene, ancient North American temperate and dry-adapted mesostenines probably found an unbroken pathway into South America via the Middle American Sierras and the high Andes of Colombia and Ecuador (north Andean uplift was well underway in the late Cretaceous and far antedated major orogeny in Perú, Bolivia, Chile, and Argentina). As documented by Hershkovitz (1972) and other authors, there is ample reason to believe that Tertiary North and Middle America were connected to South America by substantial, relatively perdurable, and mountainous land bridges. Consequently, the Miocene cold epoch (Graham 1973) probably sent a large assemblage of temperate North American mesostenines into South America. As the subequatorial Andes rose higher, these elements followed them farther south into Perú, Bolivia, north Chile, and northern Argentina. Once in at least marginally temperate to subtropical latitudes, these ancient, xerophile ichneumonids would have found both a Pacific and an east Andean foothill, Chaco thorn scrub center of differentiation. By this time, the southern Andes were high enough to create a rain shadow on the Pacific Coast from Perú to Chile and allow development there of a semiarid flora, containing such arbustive xerophytes as *Acacia*, *Caesalpinia*, *Celtis*, *Cercidium*, *Cordia*, *Geoffroea*, *Prosopis* and *Schinus*, derived from and then still connected to the Argentina Chaco across low mountain passes in a dry but comparatively warm climate (Solbrig 1976). The previous existence of two Chaqueñan differentiation centers in partial contact across the Andes is shown not only by phytogeographic similarities between the Pacific deserts and the Argentine Chaco, but also by occurrence of semi-vicariant mesostenine species in Chile and in the Argentine Chaco as well as in the Chaco-derived Subandean Desert. These exist in such genera as *Aeglocryptus* (*A. nigricornis* and *A. viridis*), *Picrocryptoides* (*P. hesperios* and *P. willinki*), *Neocryptopteryx* (several species pairs, such as *N. hypodyneri* and *N. ocris*), *Phycitiplex* (*P. eremnus* and *P. doddi*), and *Myrmecacis* (*M. metargas* and several as yet undescribed northwest Argentine Subandean Prepuna species).

I consequently assume that by the late Tertiary Chile possessed a distinctive mesostenine fauna in which *Trachysphyrus* group and *Anacis* group mesostenines, the first of old Holarctic stock and the second of Neantarctic lineage, were becoming increasingly prominent as gradually drier and/or cooler climate initiated the extinction of most endemic Neotropical elements. By this time, the Holarctic stocks had evolved so long in South America that their generic affinities in the Northern Hemisphere had become obscure and the South American Neantarctic lineages had experienced similar phyletic disjunction, except for *Anacis* with its Australian congeners.

The climatically agitated Pleistocene brought more obstacles to gene flow and encouraged a fervid cycle of speciation. The tropical and subtropical Pacific coast of Perú and north Chile, already semiarid by reason of the Andean rainshadow, was converted into an extreme desert through action of the cold Humboldt Current flowing northward from the Antarctic ice cap. The West Andean Puna species of *Cosmiocryptus* (endemic to this region), of *Aeliopotes* (also endemic), as well as of *Trachysphyrus*, *Neocryptopteryx*, *Hypsanacis*, and *Itamuton* probably originated at this time in the Andean Pacific foothills at elevations much lower than those which they occupy today. Ice covered most of South America below 38°-40° South latitude and enveloped the more northern Andes in such a way as to cut off most biotic peregrination between Neantarctic Chile and Argentina. Between 23° and 25° South in Chile's Antofagasta Province a nearly azoic barrier was created which determined, and still imposes, an almost total separation between the ichneumonids (and many other elements) of Chile's modern "*Nothofagus* zone" and those of the northern West Puna and subtropical Coastal Desert. The genesis of this barrier needs further study but probably resides in such factors as the following: (1). The Andean Cordillera is very high, complex, and unusually far from the coast at this point. During the present warmer episode, most glaciated and snow-covered peaks lie too far inland to feed more than a few rivers that run through to the coast or even the Precordillera. (2). The Andean rain shadow is especially effective at this point well south of the Amazon Basin and separated by 300 km of semiarid Argentine Subandean cordilleras from the nearest wet zone (i.e., the narrow strip of Selva Tucumano-Boliviana which reaches south through Jujuy, Salta, and Tucumán Provinces along the easternmost mountains of northwest Argentina). (3). The surfacing Humboldt Current remains usually stable here and extracts all rain available in clouds approaching from the subtropical Pacific. Farther north in Perú the current may shift every decade or less (the El Niño phenomenon) and then allow torrential rain along the coast. At the latitude of Antofagasta Province this mechanism seems no longer effective.

The biota of Neantarctic Chile, already endowed with many unusual characteristics in the last half of the Tertiary, assumed its modern and overwhelmingly distinctive composition during the past two million years of Pleistocene glaciation. As witnessed by relict pockets of Valdivian forest plants and animals scattered in humid refugia from 27° South to 35° South Latitude in north-central Chile, glacial maxima pushed the entire Neantarctic assemblage north into what is now the Central Region, Coquimban Desert, and the south end of the Atacama Desert. During each interglacial, there was a more or less prolonged and extensive return southward, followed by new retreats to the north. Since these movements took place several times and with varying intensity, it is hard to decipher their exact effect on the Neantarctic Biota, particularly in terms of protractedly isolated refugia and intrinsic speciation. Certainly, the presence of putative endemics in parts of the Central Valley, in the Northern Valdivian Forest, in Valdivian Forest proper, and in the Magallanes Interoceanic Region suggest that allopatric speciation was promoted by Pleistocene events in Chile. Nonetheless, the fundamental unity of the Neantarctic mesostenine component, from Atacama to Tierra del Fuego, is strongly confirmed by the large component of modern species whose distributions extend uninterruptedly from Coquimbo to Magallanes. The glaciations left this fauna an almost totally endemic assemblage of Neantarctic and Old Holarctic genera, with scarcely any of the Neotropic elements, the presence of which might be inferred from geographic proximity and from knowledge that such biota can adapt to temperate climates (with far colder winters than those of south Chile) in other parts of the New World. Sublime geologic barriers, which concentrated the violence of recent glacial disasters, have acted in synergy to produce one of the planet's most wonderful biotas, all the more intriguing because it populates not an island, but part of a continent whose other plants and animals remain highly cohesive over thousands of kilometers as a phyletic unit radically disparate from the unique Chilean element.

Historical Perspective

Taxonomic studies of Chilean Ichneumonidae mostly have consisted in stray descriptions of new species or genera. The first comprehensive review was by Spinola (1851) in Gay's monumental "Historia Física y Política de Chile." Spinola gave useful descriptions for the species here called *Dotocryptus bellicosus* (*macrocercus* Spinola), *Dotocryptus pedisequus*, *Xiphonychidion viduum*, *Trachysphyrus irinus* (*splendidus* Spinola), *Aeglocryptus nigricornis* (*saphyrinus* Spinola), *Aglaodina cribricollis*, *Anacis rubripes*, *Chilecryptus tetracanthus*, *Neocryptopteryx metriurus*, and *Itamuton rufitibia*. Spinola's diagnoses were excellent for their time but in many cases not sufficient to identify the species described. For that reason, three of this author's species whose types have not been seen in modern times remain as *nomina dubia*: *Ichneumon* (*Cryptus*) *gayi*, *Ichneumon* (*Cryptus*) *melanoscelis*, and *Ichneumon* (*Cryptus*) *pilicollis*. More than a century passed until the next major, synthetic treatment of Ichneumonidae in Latin America. In 1966, Townes published *A Catalog and Reclassification of the Neotropic Ichneumonidae*. Based on personal examination of most extant holotypes and on the author's own collection (rich in neotropical material from his fieldtrips and donations by Latin American colleagues), this catalog assigned most Latin American ichneumonids to appropriate genera in the contemporary classification scheme, furnished authoritative generic and specific synonymies, and gave the first workable key to the region's genera. Townes then began to revise the world ichneumonid genera and in 1969 published the second part of his *Genera of Ichneumonidae* with keys, descriptions, and illustrations covering the whole Tribe Mesostenini. In the Chilean fauna, Townes recognized *Cyclaulus*, *Mesostenus*, *Dotocryptus*, *Trachysphyrus*, *Chromocryptus*, *Picrocryptoides*, *Caenopelte*, and *Anacis*. He also was the first to point out trans-Antarctic affinities for *Anacis* by including in this genus the Tasmanian *Cryptus exul* Turner (1919). Concurrently, Porter has been revising the Neantarctic and other South American mesostenines related to *Trachysphyrus* and *Anacis* in a series of monographs and short articles (1963, 1965, 1967a, 1967b, 1967c, 1967d, 1969, 1970, 1971, 1973, 1975, 1976, 1977, 1980, 1983, 1985a, 1985b, 1985c, 1986a, 1986b, 1986c). The most critical problems encountered during these studies have been caused by the multiplicity of species (more than 100 already described and at least an equal number awaiting study) and the great variability in diagnostic characters, which complicates establishment of generic limits. Such genera as *Mesostenus*, *Cyclaulus*, *Dotocryptus*, *Caenopelte*, *Anacis*, and *Picrocryptoides* have created few difficulties. The remaining species often have been placed under *Trachysphyrus* (Townes 1966, Porter 1967a). This creates a huge group of mesostenines with a large areolet, approximately straight mediella, well developed notauli, and an elongate propodeal spiracle. *Trachysphyrus* in this sense seems unacceptably heterogeneous, even with regard to the basic features just mentioned. Townes (1969) improved the classification by splitting the South American *Trachysphyrus* into one genus (*Trachysphyrus s. str.*) with the axillus vein at least a little divergent from the anal margin of the hind wing and a second genus (*Chromocryptus*) in which the axillus is always close to and parallels the anal margin of its wing. In the present contribution, I consider the cohesive and largely endemic Chilean mesostenine fauna and propose 11 new genera (most with related species in other parts of temperate southern and/or Andean South America). This treatment recognizes that *Trachysphyrus* and *Chromocryptus* as defined by Townes are still heterogeneous and sometimes difficult to separate, because the axillus vein in South American "trachysphyroids" shows an almost complete gradation, from anally proximate to remote, within numerous groups of otherwise apparently related species (e.g., *Xiphonychidion* in Chile). The new generic classification proposed here attempts to split *Trachysphyrus* and *Chromocryptus* into a series of phenotypically compact generic groups. Notwithstanding, the arrangement now offered seems only a little less tentative and unstable than previous classifications. It will need constant modification as the Latin American and world "trachysphyroids" are more thoroughly studied and more completely described, with comparisons made not merely at a regional but also at a continental and cosmopolitan level.

COLLECTIONS EXAMINED

Listed below in alphabetic order are some of the major collections which recently furnished material of value for this study. The institutional collections are designated by name of the host city and personal collections according to surname of the owner. A more complete listing of collections is given in my Revision of the Genus Trachysphyrus (Porter 1967a) and in my series of articles on trachysphyroids in the Peruvian and North Chilean Coastal Desert (1985a, b, c).

ARICA. Instituto de Agronomía, Departamento de Agricultura, Universidad de Tarapacá (ex Universidad del Norte), Arica, Chile.

CAMBRIDGE. Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138.

GAINESVILLE. Florida State Collection of Arthropods, Division of Plant Industry, Florida Department of Agriculture & Consumer Services, P. O. Box 1259, Gainesville, FL 32602.

LONDON. Department of Entomology, British Museum (Natural History), London, SW 7 5 BD, England.

PORTER. Collection of Charles C. Porter. Currently housed with the Florida State Collection of Arthropods (see GAINESVILLE).

TOWNES. American Entomological Institute, 2935 SW 56th Avenue, Gainesville, FL 32608.

TUCUMAN. Fundación e Instituto Miguel Lillo, Facultad de Ciencias Naturales, Universidad Nacional de Tucumán, Miguel Lillo 205, 4000 San Miguel de Tucumán, Argentina.

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I am also indebted to Dr. and Mrs. Henry K. Townes for gracious hospitality at the American Entomological Institute. The Townes collection and library constitute the single most valuable ichneumonid research complex in existence.

Mr. Thomas J. O'Neill, who worked until 1986 at Fordham University, assisted me during South American fieldtrips in 1982, 1984, and 1986. He proved an expert and cheerful ichneumonid collector and preparator. Mr. O'Neill also did the beautiful inked drawings of entire insects which help illustrate this and several of my other recent publications.

Mr. Jaime Zung and Ms. Stephanie Zabski took the Scanning Electron Microscope photographs, using an Hitachi S-510 instrument under the supervision of Dr. E. Ruth Witkus, Professor and recent Chair in the Department of Biological Sciences at Fordham University.

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KEY TO THE CHILEAN GENERA OF MESOSTENINI

1. Areolet very small, quadrangular, 1.6 or more as wide as high . . . . 1. Mesostenus Gravenhorst

1.' Areolet large, pentagonal, at most 1.3 as wide as high 2

2. First gastric tergite with spiracle slightly distad of middle; sternaulus reaches about 0.6 the distance from prepectal carina to mid coxal base and then turns abruptly dorsad toward speculum; apex of clypeus with a median tooth; female last flagellomere truncate on apex . . . . 2. Cyclaulus Townes

2.' First gastric tergite with spiracle far behind middle; sternaulus rarely upturned at apex; apex of clypeus rarely with a median tooth; female last flagellomere rounded or sub-acute on apex 8

3. Mandible 3.0-3.4 as long as wide across base of teeth, its lower tooth often longer than the upper; pronotal collar margined anteriorly by a very high flange that often abuts against postocciput; no tubercles or other excrescences in groove between metanotum and propodeum; ventral valve of ovipositor enclosing dorsal valve on tip, its ridges strongly recurved dorsad; sheathed portion of ovipositor 0.90-4.5 as long as fore wing; postpetiole at most 1.1 as wide at apex as long from spiracle to apex and usually much longer than wide . . . . 3. Dotocryptus Brèthes

3.' Mandible often less elongate than described above, its teeth usually subequal (rarely with lower tooth longer than upper); pronotal collar margined anteriorly by a sharp carina or a low flange; groove between metanotum and propodeum with at least one pair of tubercles detectable; ventral valve of ovipositor never encloses dorsal valve on tip, its ridges never recurved dorsally; sheathed portion of ovipositor 0.20-4.0 as long as fore wing 4

4. Occipital carina progressively more elevated ventrad and becomes a very high flange below, where it does not join the prominently raised and scoop-shaped hypostomal carina; anterior margin of pronotum below at mid-height with a large, deflected, ligulate projection; propodeum in both sexes elongate with basal and apical faces smoothly confluent and cristae obsolete or absent; sheathed portion of ovipositor 3.0-4.0 as long as fore wing . . . . 4. Periplasma Porter

4.' Occipital carina narrow to elevated, in which case it joins hypostomal carina; anterior margin of pronotum without a long projection at mid-height (sometimes with a stout and horizontal tooth); propodeum (at least in female) usually short and high with basal and apical faces discrete and often with conspicuous cristae; sheathed portion of ovipositor rarely more than 0.80 length of fore wing 5

5. Lower prepectus with a conspicuous triangular, ligulate, or tubular

excrescence; occipital carina in many species becoming elevated ventrad; axillus weakly to strongly divergent from anal margin of hind wing . . . . 5. Xiphonychidion Porter

5.' Lower prepectus without an excrescence or at most with a weak carina; other characters variable 6

6. Axillus far from anal margin of hind wing and often as close to submediella as to anal margin 7

6.' Axillus very close to anal margin of hind wing 12

7. Mandible long and narrow, 3.0-3.3 as long as wide across base of teeth, with a broad and deep excavation at its base; pronotum with humeral groove obsolete and epomia confined to scrobe (where it is at best weakly differentiated among adjoining wrinkles); areolet with intercubiti strongly convergent dorsad, 2nd abscissa of radius 0.4-0.5 as long as 1st intercubitus, areolet about 1.1 as wide as high; groove between metanotum and propodeum with submedian tubercles strong on both faces of groove; 1st gastric tergite long and slender, postpetiole 1.0-1.1 as wide at apex as long from spiracle to apex; ovipositor with sheathed portion 0.20 as long as fore wing, straight, strongly compressed, tip 0.19-0.22 as high at notch as long from notch to apex; ground color dull metallic green . . . . 6. Sciocryptus Porter

7.' Mandible stouter, usually less than 3.0 as long as wide across base of teeth and without a large basal excavation; pronotum with humeral groove well developed at least on its basal 0.5 and with epomia conspicuous; areolet with intercubiti diversely and sometimes differentially convergent dorsad, 2nd abscissa of radius 0.5-1.2 as long as 1st intercubitus, areolet usually 1.0 or less as wide as high; groove between metanotum and propodeum with submedian tubercles usually visible on metanotal face, more rarely well developed on both faces; postpetiole in female 1.1-2.3 as wide apically as long from spiracle to apex, in male 0.7-1.7 as wide; ground color variable . . 8

8. Epomia strong in scrobe and continuing a short distance above scrobe but never turned mesad so as to set off a triangular to ligulate lamella near front end of humeral groove 9

8.' Epomia strong in and above scrobe, turning mesad above where it delimits a more or less triangular, ligulate, or even dentiform lamella near front end of humeral groove 10

9. Second gastric tergite uniformly mat and finely granular . . . . 8. Aeglocryptus Porter

9.' Second gastric tergite at least in part smooth and polished, sometimes with extensive micro-reticulation, often polished throughout . . . . 7. Trachysphyrus Haliday

10. Stemmaticum swollen and raised well above rest of vertex; clypeus strongly nasute in profile; tyloids of male flagellum begin on

segment 8 or 9; malar space 1.2-1.8 as long as basal width of mandible; 2nd recurrent vein strongly reclivous; female 2nd gastric tergite with large, strong, dense punctures; propodeum elongate and inflated with smooth contours and its areolation, including cristae, obsolete or absent; ovipositor stout and lacking a nodus . . . . 9. Picrocryptoides Porter

10.' Stemmaticum not elevated; clypeus in profile weakly to strongly convex or bluntly and more or less symmetrically sybpyramidal; tyloids of male flagellum begin on segment 13 or 14; malar space 0.70-1.2 as long as basal width of mandible; 2nd recurrent vertical to gently reclivous, sometimes out-bulged on upper 0.5; female 2nd gastric tergite with sparse, tiny to medium sized punctures; propodeum short and high with discrete basal and apical faces (at least in female), with some carinae and cristae always present; nodus present on ovipositor tip 11

11. Mesoscutum with uniformly dense, small, sharp punctures; speculum mostly smooth and polished; prepectal carina strong, ending on front mesopleural margin near its mid-height; sternaulus well defined throughout; groove between metanotum and propodeum with submedian tubercles tiny but sharp on metanotal face but large and convex on propodeal face (especially prominent and upcurved in male); disco-cubitus gently arched; propodeal cristae low cuneate to short subligulate; base of petiole with a strong, bluntly triangular lateral projection; ovipositor with sheathed portion 0.60-0.70 as long as fore wing, stout, somewhat compressed, nodus distinct but low, notch absent, tip 0.13-0.18 as high at summit of nodus as long from summit to apex . . . . 10. Aeliopotes Porter

11.' Mesoscutum grossly reticulo-punctate with many huge, deep, subadjacent (or sparser) to confluent punctures; prepectal carina sharp to near upper 0.8 of mesopleuron but not reaching front margin of mesopleuron or subalarum; specu-lum partly to wholly punctate and wrinkled; sternaulus broad but weak, barely detectable on its apical 0.5 toward mid-coxal base; groove between metanotum and propodeum with tubercles tiny but acute on metanotal face submedially and obsolete on corresponding loci of propodeal face; disco-cubitus abruptly bent a little basad of middle; cristae rather stoutly to narrowly ligulate, strongly projecting; petiole without a baso-lateral expansion; ovipositor with sheathed portion 0.30-0.40 as long as fore wing, straight, moderately slender, highly compressed, nodus and notch dis-tinct, tip 0.9-0.23 as high at notch as long from notch to apex . . . . 11. Aglaodina Porter

12. Mandible with ventral margin sharply carinate and the lower tooth longer and stouter than the upper; clypeus in profile with basal 0.6-0.7 more or less convex and the apical portion abruptly depressed through to apex, its apical margin with a broadly triangular median tooth that is prolonged as a vertical ridge far dorsad along flattened part of clypeus; female front tibia much inflated; 2nd gastric tergite almost uniformly with shallow but well defined, medium sized, adjacent to confluent punctures; ventral valve of

ovipositor on tip with ridges weakly inclivous to vertical . . . . 12. Xylacis Porter

12.' Mandible with ventral margin more or less blunt and its teeth subequal or with upper tooth a little longer than lower; clypeal structure not as described above; punctures of 2nd gastric tergite variable, usually smaller and/or sparser than described above; female front tibia slender to inflated; ridges on ventral valve of ovipositor normally inclivous, sometimes reclivous, rarely vertical 13

13. Ventral valve of ovipositor tip with reclivously oblique ridges; clypeus weakly raised in profile; mediella arched; propodeal spiracle round or nearly so; area basalis in profile steeply declivous between median abscissa of basal trans-carina and propodeal base . . . 14

13.' Ventral valve of ovipositor with inclivous to (less often) vertical ridges; clypeus variable in profile, low to often strongly elevated; mediella arched to straight; propodeal spiracle round to elongate; area basalis often horizontal in profile 15

14. Clypeus with apical margin slightly convex; most tyloids oblique with regard to long axis of their segments; humeral groove of propodeum vestigial; epomia not or not sharply differentiated among other ridges in scrobe; areolet with intercubiti very strongly convergent above; discocubitus almost evenly and gently arched; female postpetiole 0.90-1.1 as wide apically as long from spiracle to apex, male postpetiole 0.8 as wide; gaster apically deplanate; ovipositor slender with ridges on ventral valve widely spaced . . . . 13. Nothischnus Porter

14.' Clypeus with apical margin gently concave to straight and with the apical face flattened to a little depressed; tyloids aligned with longitudinal axis of their segments; humeral groove of pronotum broad and shallow (weak in small males); epomia weakly to strongly developed in scrobe; areolet with intercubiti moderately convergent above; discocubitus broadly angled and usually with a ramellus; female post-periole 1.1-1.3 as wide apically as long from spiracle to apex, male postpetiole 0.8 as wide; gaster not apically deplanate; ovipositor tip stout, ridges crowded on its ventral valve . . . . 14. Caenopelte Porter

15. Hind coxa without a strong, polished groove descending from its attachment; front at most weakly concave below toward antennal sockets; groove between metanotum and propodeum with submedian tubercles present on both metanotal and propodeal faces; areolet large and broad, usually wider than high, 2nd abscissa of radius 0.6-1.1 as long as 1st intercubitus; mediella usually arched in both sexes; propodeal spiracle round to short-oval; basal trans-carina of propodeum percurrently straight to medially bowed forward but always far from base of propodeum (no farther basad than proximal 0.3 of propodeal dorsum); apical trans-carina also varying from straight to medially thrust forward, but distant from basal carina, so that areola is square to longer than wide in position 16

15.' Hind coxa with at least a short, polished groove that descends from its attachment; areolet often as high as or higher than wide; mediella often straight, especially in female; pro-podeal spiracle often 2.0 or more as long as wide, ovoid to slit-like; other characters more unstable but frequently not as described above . . 17

16. Second recurrent strongly inclivous; radial cell 2.2-2.6 as long as wide; fore wing a little infumate with apex contrastingly paler; mesopleural disc with long, shaggy, silvery vestiture . . . . 15. Dochmidium Porter

16.' Second recurrent at most gently inclivous, often vertical; radial cell 2.7-3.9 as long as wide; wings hyaline or sometimes infumate with pale submedian and apical areas; mesopleural disc without shaggy and silver vestitute . . . . 16. Anacis Porter

17. Metanotal-propodeal groove with tubercles submedially only on metanotal face; 2nd recurrent usually vertical to weakly inclivous, more rarely a little reclivous and outbulged on upper 0.5; mediella straight in female, sometimes a little arched in male 18

17.' Groove with well developed tubercles on metanotal face submedially and strong, sharp to low, blunt metanotal bosses; 2nd recurrent often reclivous and outbulged above; mediella more or less arched . . . 20

18. Male flagellum with at least 1 enlarged tyloid that is ovoid or rectangular; mesoscutum shining with abundant, sharp medium sized, mostly subadjacent to sparser punctures; mesopleural disc most often with a large smooth and polished callus dorsad along prepectal carina opposite speculum, its sculpture otherwise grossly wrinkled with polished inter-stices; central lobe of mesoscutum usually with some very strong longitudinal wrinkles apicad; surface of postpetiole unusually smooth and with at most a faint vestige of dorsal carina; gaster normally solid red . . . . .17. Cosmiocryptus Cameron

18.' Male flagellum with all tyloids sharply linear to narrowly bacilliform; mesoscutum shining to mat, punctate or puncto-reticulate, the punctures adjacent to reticulately confluent over wide areas; mesopleural disc without a dorso-anterior smooth callus, its sculpture finely and granularly to grossly reticulo-rugose (with gross sculpture only in Chilecryptus tetracanthus); surface of postpetiole more or less micro-reticulate and punctured, in females often with strong but blunt dorsal carinae that define a prominent median area; gaster black, black and white, sometimes also partly red 19

19. Front of collar margined by a low to much elevated oblique flange that is partly overhung by the collar's proximally skewed median transverse swelling; mesoscutum dully shining to mat with fine, granular micro-reticulation and rather small to minute, very dense punctures; area basalis steeply declivous to propodeum; female postpetiole 1.0-1.4 as wide apically as long from spiracle to apex, in male 0.6-0.8 as wide; setae on 2nd gastric tergite always in part dense . . . . 18. Chilecryptus

19.' Front of collar margined by a sharp, vertical, sometimes inconspicuously lamelliform carina that is not overhung by the collar's median transverse swelling; mesoscutum most often shining and with moderately large to coarse, usually strong, subadjacent to reticulately confluent punctures or sometimes grossly puncto-reticulate throughout; area basal-is horizontal in profile; female postpetiole 1.2-1.9 as wide apically as long from spiracle to apex, in male 0.6-1.1 as wide; setae on female 2nd gastric tergite in most species largely shorter than the length of their inter-spaces . . . . 19. Neocryptopteryx Blanchard

20. Mesopleural disc (at least in female) with reticulate wrink-ling on lower 0.5 but on upper 0.5 with more longitudinally biased wrinkling and with a slightly swollen and smoother, delicately punctate area in its dorso-anterior quadrant; apical trans-carina of propodeum percurrent and stronger than the basal trans-carina; (notauli 0.2-0.5 length of mesoscutum and mesoscutal surface smooth and shining with very dense, small punctures; intercubiti very convergent dorsad; 2nd recurrent gently reclivous and outbulged above; dorsal carinae often strong on apex of petiole and base of postpetiole; setae on female 2nd gastric tergite mostly as long as or longer than their interspaces; female flagellum much shorter than body, a little swollen apicad; clypeus with basal and apical faces notably but not sharply discrete, so that clypeus appears bipartite in front view) . . . . 20. Araucacis Porter

20.' Mesopleural disc in most cases with uniform reticulate or reticulo-punctate sculpture; apical trans-carina of propodeum at most as strong as the basal trans-carina and usually weaker to obsolete 21

21. Occipital carina weakened or effaced near juncture with hypostomal carina; humeral margin of pronotum gently swollen and without a groove; mesoscutum with abundant gross punctures which are mostly separated by rather broad and polished interspaces; mesopleural disc with coarse reticulate wrinkling; intercubiti of areolet weakly to moderately convergent above ovipositor robust, weakly compressed, and slightly decurved . . . . 21. Oecetiplex Porter

21.' Occipital carina sharp throughout and joining hypostomal carina below; pronotum with humeral groove percurrent (sometimes weak and in males sometimes partly effaced); mesoscutum mat to shining with small, subadjacent to reticulately confluent punctures; mesopleural disc mat to shining with fine to moderately strong reticulate wrinkling; intercubiti strongly convergent above; ovipositor slender, compressed, straight or decurved 22

22. Clypeus with apical margin narrow but sharply differentiated and sometimes reflexed throughout; mesoscutum with strong, reticulate wrinkling on most of its surface, sometimes with finer sculpture and some discrete punctures toward mid-line of lateral lobes; areolet about as wide as high; basal trans-carina well removed from propodeal base, its median abscissa at about proximal 0.3 on dorsal face of propodeum . . . . 22. Hypsanacis Porter

22.' Clypeus with apical margin not percurrently sharp and impressed or reflexed; mesoscutum with fine and dense punctation and puncto-reticulation, usually with extensive areas of discrete (if crowded) punctures; areolet often higher than wide; basal trans-carina on median abscissa approaching front end of propodeum by less than 0.3 the length of dorsal face 23

23. Female 2nd gastric tergite with short, inconspicuous, scattered setae; front strongly excavated and polished on lower 0.4-0.6 (sometimes shining but transversely wrinkled throughout); malar space in female 0.80-1.6 basal width of mandible, 0.70-1.3 as long in male; mesoscutum in many species smooth and shining with small, subadjacent punctures; sternaulus percurrent but always weaker on its apical 0.4 toward base of mid coxa; (apical trans-carina of propodeum, when present, comes very close medially to basal trans-carina; areola often much broader than long; dorsal carinae in female conspicuous and often sharp toward apex of petiole and on base of post-petiole, where they enclose a median field) . . . . . .23. Itamuton Porter

23.' Female 2nd gastric tergite with setae that generally approach to exceed the length of their interspaces; front weakly excavated, even on lower 0.5 toward antennal sockets, shining and with some transverse wrinkles below and mat to dully shining with dense sculpture above; malar space in female 0.70-0.90 as long as basal width of mandible, in male 0.60-0.90 as long; mesoscutum with fine and dense punctation and/or reticulation without polished punctural interstices; sternaulus impressed on basal 0.5-0.7 of mesopleuron but obsolete apicad toward base of mid coxa (often absent on apical 0.3-0.5) 24

24. Female flagellum filiform not enlarged or ventrally depressed on apical 0.5, its 1st segment in female 5.1-5.3 as long as deep at apex, in male 2.7-3.1 as long; mesoscutum with notauli reaching 0.4-0.8 its length and with surface uniformly covered by medium sized to small, briefly subadjacent to adjacent or confluent punctures, so that the surface sometimes is largely granularly puncto-reticulate; areolet 1.0-1.2 as high as wide; discocubitus broadly angled; propodeal cristae low crescentic; ovipositor with sheathed portion 0.80 as long as fore wing, straight basally and gently decurved on apical 0.5, slender, compressed, nodus low and weak with a tiny notch, dorsal valve taper between notch and apex long and subtly concave, tip 0.19-0.22 as high at notch as long from notch to apex . . . . 24. Phycitiplex Porter

24.' Female flagellum a little flattened below and subtly enlarged on apical 0.5; 1st flagellar segment in female 6.1-6.7 as long as deep at apex, in male 3.5-3.9 as long; mesoscutum with notauli weak and traceable 0.3-0.5 its length and on surface with almost uniformly fine and granular puncto-reticulation; areolet 1.4-1.6 as high as wide; discocubitus abruptly angled; cristae rather strongly projecting subligulate to short ligulate or cuneate; ovipositor with sheathed portion 0.40 as long as fore wing, straight, rather stout and strongly compressed, dorsal valve with an elongate and steep, direct or slightly convex taper between the rather high nodus and notch and the apex, tip 0.23-0.27 as high at notch as long from notch to apex . . . . 25. Myrmecacis Porter

1. Genus MESOSTENUS

(Fig. cf. 202)

Mesostenus Gravenhorst, 1829. Ichneumonologia europaea 2: 750.
Type: Mesostenus transfuga Gravenhorst. Designated by Westwood, 1840.

Fore wing 2.7-9.3 mm long. Coloration: black and white with gaster sometimes mainly orange; flagellum often with a white band; wings hyaline to moderately infumate. Body in both sexes long and slender. Front often with a median longitudinal carina that may be much elevated. Clypeus in profile strongly raised, convex to bluntly subpyramidal. Pronotum with epomia well developed, at least in scrobe. Mesoscutum with notauli sharp and reaching 0.6 or more its length; surface more or less polished with strong and quite dense punctures. Wing venation: areolet very small, quadrangular, a little higher on apex than at base, about 1.6 as wide as high; 2nd recurrent gently reclivous and a little outcurved dorsad; discocubitus scarcely arched or angled, ramellus absent; mediella nearly straight to gently arched; axillus very close to anal margin of hind wing. Propodeum gently convex in contour, the basal and apical faces often smoothly merging; basal trans-carina traceable throughout and arched forward medially so as to closely approach propodeal base; apical trans-carina percurrent or obsolete medially, where it is thrust forward but remains distant from basal carina, its cristae often weak and subcrescentic. First gastric segment: with a baso-lateral tooth on petiole; slender, even in female with postpetiole little expanded and usually less than 1.0 as wide apically as long from spiracle to apex; ventro-lateral carina usually percurrent; dorso-lateral and dorsal carinae absent. Second gastric tergite more or less polished with sharp, medium sized punctures which vary from dense to sparse. Ovipositor with sheathed portion 0.57-3.5 as long as fore wing; moderately slender and compressed.

1. Mesostenus cuzcensis Porter

Mesostenus cuzcensis Porter, 1973. Acta Zoologica Lilloana 26(21): 263-67. Type f: Perú, Cuzco Province, Cuzco (Townes).

I described Mesostenus cuzcensis (Porter 1973) from material collected in the central Andean Puna at 3800 m altitude on slopes above Cuzco, Perú. More recently it has also been obtained in the western Andes near Trujillo in northern Perú (Samne at 1500 m) and far to the south at Chapiquiña (3370 m) above Arica, Chile (Porter 1983).

Chilean specimens of M. cuzcensis differ from all others in having the gaster entirely black, rather than orange. In structural features they seem identical to the Cuzco populations from which this species first was described. Further collecting probably will show intergradation in abdominal color across the Andes of southern Perú, Bolivia, and nearby Chile.

NEW SPECIMENS EXAMINED. 3 f and 5 m: PERU, La Libertad Province, Samne, 40 km NE Trujillo, ca. 1500 m, 12-17-VII-1975, C. Porter, L. Stange; CHILE, Tarapacá Province, Chapiquiña, 3370 m, VIII-1976, I-1977, Malaise Trap, C. Porter, G. Díaz.

FIELD NOTES. The Malaise Trap operated at Chapiquiña was placed across a small, permanent stream bordered by high bunch grass and, at some distance by alfalfa patches and *Eucalyptus* groves. This is a typical habitat in the Western Puna Biotic Region.

2. Genus *CYCLAULUS*

(Fig. 187, cf. 1, 12, 23-25)

Cyclaulus Townes, 1969. Genera of Ichneumonidae, Part 2: Gelinae. Mem. Amer, Ent. Inst. 12: 171-2. Type: *Cyclaulus trispilus* Townes. Monobasic.

Fore wing 6.1-7.5 mm long. Coloration: head and body complexly marked with black, brownish, red, and white; flagellum without white band; wings hyaline with slight brown staining apicad. Body in female moderately elongate fusiform, more slender and cylindric in male. Female flagellum with last flagellomere apically truncate. Clypeus in profile low and gently convex, its apex with a median tooth. Mandible stout with its teeth subequal. Malar space 0.70-0.80 as long as basal width of mandible. Mesoscutum with notauli faintly to strongly impressed but traceable about 0.6-0.7 the length of mesoscutum; surface finely and densely punctate, varying from completely mat to partly shining. Mesopleuron with disc finely and reticulately to more or less longitudinally wrinkled; sternaulus reaching little more than 0.5 the distance rearward to mid coxa and then turned up toward speculum. Wing venation: areolet moderately large, pentagonal, intercubiti convergent dorsad; mediella gently arched; brachiella often short; axillus close to anal margin of hind wing. Hind coxa without a groove beneath its attachment. Female fore tibia strongly inflated. Groove between metanotum and propodeum without submedian tubercles on metanotal face. Propodeum with spiracle round; rather elongate, with basal and apical faces smoothly confluent; basal trans-carina percurrent and far from base of propodeum; apical trans-carina complete or medially weakened, sublaterally with elongate and weakly crescentic to broad and low, weakly tuberculate cristae. First gastric tergite short and stout with spiracle only a little behind middle; postpetiole 1.0-1.4 as wide apically as long from spiracle to apex; ventro-lateral carina sharp throughout; dorso-lateral carina varying from clearly traceable to indistinct; dorsal carinae absent or faint. Second gastric tergite mat with abundant fine punctures and many short setae that equal the length of their interspaces. Ovipositor with sheathed portion 0.30 as long as fore wing; straight, compressed, moderately stout; dorsal valve on tip with a faint notch and rudimentary nodus; ventral valve on tip with nearly vertical ridges and sometimes produced into a lobe which partly covers the dorsal valve.

RELATIONSHIPS. Townes (1969: 171-2) places *Cyclaulus* with *Ischnus*, *Trachysphyrus*, *Anacis*, and many similar genera in his Subtribe Ischnina. In this context, *Cyclaulus* would appear most closely related to *Anacis* because of its ungrooved hind coxa, round propodeal spiracle, basal transcarina which runs far from the front margin of the propodeum, comparatively broad areolet, gently arched mediella, and short brachiella vein. Cyclaulus differs from Anacis and other ischnines by its apically truncate distalmost female flagellomere, medially dentate clypeus, upcurved sternaulus, strongly inflated female front tibia, ungrooved hind coxal base, lack of a pair of submedian tubercles on the apical face of the metanotum below its rim, stout 1st gastric tergite with spiracle only slightly behind the middle, and modified ovipositor tip with vertical ridges on the ventral valve and a tendency for the ventral valve to form a lobe which partly overlaps the dorsal valve. Many of these features occur singly in other ischnine genera, but only Cyclaulus has the entire series.

Some of the characters which define Cyclaulus (last female flagellomere modified, toothed clypeus, inflated female front tibia, and specializations of the 1st gastric tergite and the ovipositor) seem adaptive for parasitism of coleopterous or other endopterygote larvae which bore in twigs or stems. The Holarctic ischnine Xylophrurus, which parasitizes cerambycid and buprestid larvae, as well as the primarily tropicopolitan mesostenine subtribe Gabuniina (Townes 1969), whose species attack wood boring Coleoptera and Lepidoptera, closely parallel Cyclaulus in the previously mentioned features. I thus infer that Cyclaulus eventually will be reared from xylophagous hosts and that the subtribal status of this and numerous other mesostenine genera remains dubious.

1. Cyclaulus eremia Porter

Cyclaulus eremia Porter, 1976. Fla. Ent. 59(4): 353-60. Type f: Perú, La Libertad Department, Samne (Gainesville).

NEW SPECIMENS EXAMINED. 2 f: PERU, Lima, San Gerónimo ca. Chosica, 28-VI-1976, C. Porter, C. Calmbacher.

FIELD NOTES. The only Chilean Cyclaulus is C. eremia, which occurs in the Valle de Lluta at less than 1000 m near Arica and ranges northward in fertile valleys of the Coastal Desert at least as far as Trujillo, Perú (Porter 1976: 353-60). This species may be collected by sweeping understory vegetation in gallery woods along streams and irrigation canals. Other Cyclaulus frequent Andean Cloud Forests between Colombia and northwest Argentina, so that C. eremia may be considered a relict at least as ancient as the Pleistocene glacial maxima and perhaps even a remnant of the wet forest biota which inhabited the Pacific coast of subequatorial South America during much of the earlier Tertiary.

3. Genus DOTOCRYPTUS

Dotocryptus Brethes, (1918) 1919. Revta. Chilena Hist. Natl. 22: 162. Type: (Dotocryptus barrosi Brethes)=Ichneumon pedisequus Spinola. Monobasic.

Fore wing 5.4-12.7 mm long. Coloration black, sometimes with conspicuous red to orange markings on body and legs, and always with a flagellar annulus, with sparse to profuse white markings on head, mesosoma, legs, and gaster, as well as with the wings deeply to weakly infumate or in some species hyaline. Flagellum long and slender, cylindric throughout, in female filiform with 1st segment 5.3-7.2 as long as deep at apex but in male more robust, bristle shaped, with dense, regular, erect setae on venter of segments, with sharp, linear, longitudinally oriented tyloids on segments 13 (14)-19(18), and with 1st segment 3.8-4.7 as long as deep. Front shallowly excavated with obscure but well defined dorsal tentorial pits. Face 1.4 as wide between eyes just below antennal sockets as high from top of anterior tentorial pit to bottom of antennal socket. Mandible 3.0-4.0 as long as wide across base of teeth, its lower tooth often a little longer than the upper but with teeth often subequal or with the upper tooth longer than the lower. Clypeus: in profile varying from practically flat to moderately raised with contour a little asymmetrically convex or bluntly subpyramidal, its apical margin straight to gently convex and usually provided with a broad preapical median elevation that narrows below converging on meson of apical margin so that clypeal apex seems to have a faint median convexity or obsolete tubercle, its apical margin laterad and its corners weakly to (often) prominently reflexed, its width 2.1-2.4 its height. Occipital carina sharp, often becoming a little to very strongly raised laterally, joining the low to very elevated hypostomal carina below. Malar space 0.40-0.60 as long as basal width of mandible. Pronotum scarcely swollen on dorsal margin and without a definite submarginal groove; epomia sharp in scrobe, without a swelling or lamella above its dorsal end; anterior pronotal margin below bluntly rounded off or subangulate at mid-height; almost entire front margin of pronotum surmounted by a sharp flange which is much elevated (sometimes abutting against postocciput) on dorso-median 0.5 and becomes gradually lower laterad and below, this anterior flange accentuated behind by a strong transverse depression or narrow groove which itself is bordered on prebasal part of pronotum by another transverse elevation that varies from sharp and carinate to broad and swollen in contour. Mesoscutum with notauli sharp and narrow, becoming weaker rearward and traceable 0.6-0.8 the length of mesoscutum; surface shining to mat with punctures numerous, sometimes crowded, and small to medium in size. Mesopleuron: lower prepectus unarmed or with a high and conspicuous ridge; disc shining and very coarsely wrinkled with extensive smooth spaces between the wrinkles or in some species with fine and granular puncto-reticulation and reticulate wrinkling and dully shining to mat. Hind coxa with a short and oblique groove arising at its attachment. Female fore tibia not inflated. All female 4th tarsomeres with apex truncate. Wing venation: areolet large, 5.7-12.0 as high as width of 2nd abscissa of radius, intercubiti gently to strongly convergent above, parallel throughout, or sometimes a little divergent, 2nd abscissa of radius 0.5-1.1 as long as 1st intercubitus, entire areolet 0.9-1.1 as high as wide; discocubitus weakly curved to straight and with ramellus absent; 2nd recurrent nearly vertical, faintly curved (sometimes more strongly curved on upper 0.5); mediella varying from straight to moderately arched in some males; axillus either close to anal margin of hind wing or somewhat divergent (always closer to anal margin than to submediella). Groove between metanotum and propodeum deep but broad and open in both sexes (broadest in male) and with all sub-median and sublateral tubercles vestigial or absent. Propodeum: spiracle 1.7-3.5 as long as wide; female profile short and high, basal face gently to strongly sloping rearward, the apical face steep and strongly to weakly discrete from the basal; basal trans-carina usually strong throughout, gently curved or angled forward medially with its central abscissa reaching about proximal 0.3 of propodeal dorsum; apical trans-carina varying from percurrently strong to medially irregular and strong laterad or sometimes mostly absent, when developed medially it is thrust well forward but remains far from basal carina; cristae low (sometimes salient), wide, and subcrescentic to broadly cuneate or (rarely) subligulate; area basalis much broader than long, rather sharply declivous to front margin of propodeum; areola 0.7-1.2 as long as wide in position (longitudinal carinae of propodeal dorsum mostly obsolete); apical face of propodeum less than 2.0 as wide as high; in male the propodeum is scarcely more elongate than in female but has the trans-carinae higher, with the apical trans-carina sometimes stronger than the basal. First gastric segment: petiole without a well defined baso-lateral expansion, very slender and not much flattened dorsally; female postpetiole 0.6-1.1 as wide apically as long from spiracle to apex; with the ventro-lateral carina percurrent; dorso-lateral carina on petiole vague or absent except near base but on postpetiole more or less traceable, especially apicad; dorsal carinae sometimes absent, when present, only detectable (not strong) toward apex of petiole and on base of postpetiole; in male even more slender than in female, with postpetiole 0.40-0.50 as wide apically as long from spiracle to apex and with the longitudinal carinae weak and the dorsal longitudinal carinae absent. Second gastric tergite weakly mat to dully shining, its setae varying from numerous but generally shorter than the length of their interspaces to rather dense and largely equalling or exceeding their interspaces, its punctures small and inconspicuous. Gaster in female elongate, fusiform and somewhat compressed toward apex, in male even longer and more slender than in female. Ovipositor with sheathed portion 0.9-4.5 as long as fore wing; very slender, cylindric; its tip attenuate, deplanate, without nodus or notch; dorsal valve sometimes with transverse ridges on tip; ventral valve on tip largely enclosing dorsal valve and with sharp, crowded, dorsally recurved (inclivous) ridges.

RELATIONSHIPS. Dotocryptus traditionally has been considered a close relative of the southern South America ischnine genera (Townes 1969: 184-5) centered around Trachysphyrus. Certainly, its large areolet, nearly straight mediella vein, and elongate propodeal spiracle suggest trachysphyroid afifnities. Conversely, Dotocryptus has many unique or atypical features, such as the very long and slender mandible; lack of a submarginal groove or even a swelling along the dorsal pronotal margin laterally; presence of a medially much elevated transverse flange on front margin of pronotum followed by a subbasal complementary sharp to blunt transverse elevation that is set off from the anterior flange by a deep groove or channel; many details of propodeal areolation and contour; very slender 1st gastric segment of both sexes; and highly modified ovipositor tip.

The mandibular and terebral specializations found in Dotocryptus seem to be adaptive features associated with parasitism of aculeate wasps that make mud nests. Indeed, both Chilean Dotocryptus species have been reared from mud nests of the eumenid Hypodynerus (Porter 1971: 229-235). Such phaenotypic and ethological attributes bring Dotocryptus close to Townes' (1969: 315) subtribe Nematopodiina. Future studies may show that Dotocryptus should be removed to the nematopodiines or, most likely, associated in a new subtribe with some of the genera currently placed in Townes' obviously polyphyletic Nematopodiina.

GEOGRAPHIC DISTRIBUTION. Dotocryptus has two species that are limited to Neantarctic Chile and adjoining Argentina, a northwest Argentine representative, and a fourth species in southern Brasil and Paraguay. The genus occupies an unusually wide range of habitats, from Nothofagus forest, the central Chilean Thorn Scrub, north Argentine deserts, semideserts and cloudforests, to the humid Chaco and wet forests of the Parana Basin.

KEY TO THE SPECIES OF DOTOCRYPTUS

1. Sheathed portion of ovipositor 0.9-1.4 as long as fore wing; occipital carina much elevated laterally and below; prepectus with a conspicuous ridge opposite lower hind corner of pronotum . . . . 1. D. pedisequus (Spinola), Chile

1.' Sheathed portion of ovipositor 2.0-4.5 as long as fore wing; occipital and hypostomal carinae a little to moderately raised; prepectus without a ridge opposite lower hind corner of pronotum 2

2. Legs mostly black; gaster with white at most on apices of tergites 3-7; mesopleuron and propodeum grossly wrinkled; apical trans-carina of propodeum well defined throughout . . . . 4. D. bellicosus (Haliday), Chile

2.' Legs mostly red or orange; gaster with white on apices of tergites 1 or 2-8; mesopleuron and propodeum with strong to coarse reticulate wrinkling; apical trans-carina of propodeum rather weak, except often sharp back of areola 3

3. Mesopleuron with a white area along prepectal carina; apical face of propodeum with a pair of pale blotches along cristae; hind metatarsus white with brown to black on its basal 0.2; areolet broad, intercubiti gently to moderately converging above, 2nd abscissa of radius 0.9-1.1 as long as 1st intercubitus; nervellus gently reclivous, its upper abscissa 1.4 as long as the lower; female postpetiole 0.8-0.9 as wide apically as long from spiracle to apex . . . . 2. D. eoeus Porter, Brasil, Paraguay

3.' No pale markings along prepectal carina or on propodeum; hind metatarsus wholly black to reddish brown; areolet comparatively high and narrow, 2nd abscissa of radius 0.5-0.7 as long as 1st intercubitus; nervellus slightly inclivous to vertical, its upper abscissa 2.0-3.3 as long as lower; postpetiole in female 1.0-1.1 as wide apically as long from spiracle to apex . . . . 3. D. zephyrus Porter, Argentina

1. Dotocryptus pedisequus (Spinola)

(Fig. 9, 13, 16, 20, 28-30, 159, 162)

Ichneumon (Cryptus) pedisequus Spinola, 1851. In Gay: Historia física y política de Chile. Zoología 6: 485. Type f: Chile, Coquimbo (Turin).

Dotocryptus Barrosi Brèthes, (1918) 1919. Revta. Chilena Hist. Natl. 22: 163. Lectotype (Townes) m: Chile, Río Blanco (Buenos Aires).

Dotocryptus pedisequus Porter, 1971. Acta Zoological Lilloana 24: 230-2.

NEW SPECIMENS EXAMINED. 1 f and 1 m: ARGENTINA, Neuquén Province, Pucará nr. Chilean border on Lago Lacar west of San Martín de los Andes, I-1970, S. Schajovskoy; CHILE, Coquimbo Province, 14 km east of Huanta nr. Puente Balalá, 2-3-X-1984, Porter, T. O'Neill (Porter).

FIELD NOTES. Dotocryptus pedisequus has been reared from mud nests of Hypodynerus (Eumenidae) that are attached to twigs or stems (Porter 1971: 235). It occurs in Chile between 30° and 40° South Latitude and reaches adjacent Argentina at the southern extreme of its range. This species appears to extend along the base of the Andes and up to at least 2000 m in a wide range of semiarid (Coquimban Desert) to temperate wet forest (Valdivian Cordillera at Pucará, Argentina) habitats. My specimen from Coquimbo was swept in a clump of Baccharis sp. growing along a small but permanent stream in otherwise almost vegetationless and very steep Andean precordillera.

2. Dotocryptus eoeus Porter

(Fig. 157, 160)

Dotocryptus eoeus Porter, 1971. Acta Zoological Lilloana 24: 219-21. Type f: Brasil, Santa Catarina State, Nova Teutonia (Cambridge).

3. Dotocryptus zephyrus Porter

(Fig. 161)

Dotocryptus zephyrus Porter, 1971. Acta Zoologica Lilloana 24: 222-26. Type f: Argentina, Tucumán Province, San Pedro de Colalao, in Malaise Trap (Tucumán).

NEW SPECIMENS EXAMINED. 2 m: ARGENTINA, Tucumán Province, Las Cejas, 22-II-13-III-1968, in Malaise Trap, C. Porter.

FIELD NOTES. Dotocryptus zephyrus occurs throughout much of northwest Argentina at altitudes from sealevel to 2000 m, with records for Salta, Tucumán, Catamarca, and Mendoza Provinces. Like its Chilean relative, Dotocryptus bellicosus, this species flourishes in a surprising variety of biotic communities, including the Chaco Seco (lowland subtropical Thorn Scrub), Chaco Serrano (highland subtropical Thorn Scrub), Selva Tucumano-Boliviana (subtropical Andean Cloudforest), and in the Desierto Subandino (subtropical semidesert at 900-2000 m in west Argentine inter-Andean valleys). Whatever its habitat, Dotocryptus zephyrus normally flies in shady places and is more frequently collected by Malaise Traps than by hand nets.

4. Dotocryptus bellicosus (Haliday)

(Figs. 2, 10, 14, 15, 17-19, 31, 155, 156)

Cryptus bellicosus Haliday, 1836, Trans. Linnean Soc. London 17: 318. Type f: Chile, Puerto de Hambre (= "Port Famine") (London).

NEW SPECIMENS EXAMINED. 2 f and 2 m: ARGENTINA, Neuquén Province, Pucará nr. Chilean border on Lago Lacar west of San Martín de los Andes, I-1970, S. Schajovskoy; CHILE, San Felipe Province, Jahuel, 16-19-X-1984, C. Porter, T. O'Neill.

FIELD NOTES. This magnificent ichneumonid, a veritable "signature species" for the Neantarctic Biotic Province, extends through most of Chile between Coquimbo Province on the north at about 30° South Latitude and Isla Navarino at 55° South (Porter 1971: 229). It also occupies "Chilean" habitats in southwestern Argentina from about 40° on south. Dotocryptus bellicosus thus occurs in the shade of dense scrub along permanent streams traversing semiarid Coquimban Desert and Central Valley biotopes but likewise penetrates all types of Nothofagus forest, including areas where annual rainfall approaches 8000 mm. It parasitizes Hypodynerus (Eumenidae) which nest in dead wood and apparently fourishes wherever it finds suitable hosts, irrespective of abiotic environmental factors.

4. Genus PERIPLASMA

Periplasma Porter, 1967. Stud. Ent. 10: 404-6. Type: Periplasma tanaum Porter. Monobasic.

Fore wing 11.7-12.1 mm long. Coloration black with a white flagellar annulus and numerous white markings on head, mesosoma, legs, and gaster, as well as with wings moderately infumate. Flagellum long and slender, scarcely flattened below toward apex, in female with 1st segment 7.8-9.1 as long as deep at apex; in male with 1st segment 5.0 as long as deep and with tyloids on segments 15-19, tyloids aligned with longitudinal axes of their segments, that on 15 sharp and linear, that on 16 long-oval, that on 17 rather short-oval, and those on segments 18 and 19 again linear. Front excavated, coarsely trans-striate on lower 0.5 above the antennal scrobes, dorsal tentorial pits tiny and evanescent. Mandible robust, strongly and evenly tapered toward apex, its teeth subequal, entire mandible 2.5 as long as wide across base of teeth. Clypeus: in profile more or less symmetrically, rather strongly and steeply convex or bluntly pyramidal; apical margin broadly truncate; corners quite weakly reflexed. Occipital carina sharp, a low flange above but becoming much raised below where it ends well in front of the hypostomal carina and about as far from the mandible as mandible is broad at base, the hypostomal carina developed into a huge, exceptionally high, scoop-like concave flange which is 0.3 as high as basal width of mandible. Malar space 0.60-0.70 as long as basal width of mandible. Pronotum with dorsal margin a little swollen and provided with a broad but vague to very weak submarginal groove laterally; epomia fine in scrobe, not prolonged or modified dorsally; anterior pronotal margin at about mid-height below with a prominent long and slender, deflected ligulate projection; anterior margin of pronotum above with a low and sharp marginal carina, lacking the high flange, transverse groove, and postjacent transverse elevation noted for Dotocryptus. Mesoscutum with notauli traceable about 0.7 the length of mesoscutum; surface shining with some micro-reticulation and with very numerous medium sized to small, well defined, adjacent to subadjacent punctures which become largest, densest, and with most distinct intercalated micro-reticulation on central lobe and which often are smaller, sparser, and with more shining interstices on lateral lobes, as well as with stronger and longitudinally biased wrinkling between notauli apicad and for a short distance beyond notaular terminus. Mesopleuron: subalarum not expanded; speculum swollen, mostly smooth and shining but with some large punctures and wrinkles; surface otherwise with fine to quite strong reticulate wrinkling; sternaulus percurrent, gently sinuate, broader and more foveolate apicad than basally; prepectus with a sharp to blunt but low carina opposite hind corner of pronotum. Hind coxa with a sharp groove descending from its basal attachment. Female front tibia slender. Fourth tarsomeres gently emarginate on apex. Wing venation: areolet moderately large, intercubiti strongly convergent above, 2nd abscissa of radius 0.5 as long as 1st intercubitus; discocubitus moderately and evenly curved with ramellus varying from obsolete to rather long; 2nd recurrent rather strongly curved, especially above, somewhat straighter and weakly reclivous on lower 0.5; mediella at most weakly arched; axillus running close to anal margin of hind wing. Propodeum in female (similar in male) elongate in profile, its dorsal and apical faces not sharply discrete, forming an almost evenly curved and sloping surface; spiracle 1.4-1.6 as long as wide; basal trans-carina percurrently detectable but weak and irregular, especially mesad and sublaterad; apical trans-carina almost obsolete but weakly traceable laterad, where it forms vague cristae. First gastric segment: without a baso-lateral expansion on petiole; petiole comparatively broad and flattened above; postpetiole elongate and about parallel-sided, 0.9-1.1 as wide apically as long from spiracle to apex; ventro-lateral carina distinct throughout; dorso-lateral carina developed only toward base; dorsal carinae weakly suggested near base on post-petiole. Second gastric tergite finely and a little granularly micro-reticulate but becoming gradually a little smoother and shinier apicad; with abundant small, very obscure, superficial punctures that emit moderately short setae which vary from about as long as to longer than the length of their interspaces (longest and densest in male). Gaster in female elongate, definitely compressed beyond 2nd tergite, and in male even more elongate. Ovipositor with sheathed portion 3.0-4.0 as long as fore wing; very slender, cylindroid, weakly compressed apicad; tip long and slender with a distinct but low nodus bearing a sharp and tiny notch; dorsal valve with a slightly convex taper between notch and apex; ventral valve with fine, inclivously oblique ridges on tip, not at all enclosing upper valve; tip 0.17-0.19 as high at notch as long from notch to apex.

RELATIONSHIPS. Periplasma constitutes a unique, monotypic Araucanian lineage biogeographically analogous to Sciocryptus, Nothischnus, and Caenopelte. Doubtless, it is related to those species included by Townes (1969: 180) in his broadly drawn concept of Chromocryptus. I maintain its generic status by reason of the following unusual and even autapomorphic characters: Very elongate female 1st flagellomere; coarsely trans-striate lower front; disjunct and hypertrophied occipital and hypostomal carina;

toothed lower pronotal margin; elongate propodeum with obsolescent areolation; slender but dorsally flattened 1st gastric segment; semicompressed gaster; and the extraordinarily elongate ovipositor with its attenuate but otherwise unmodified tip.

1. Periplasma tanaum Porter

(Fig. 170)

Periplasma tanaum Porter, 1967. Stud. Ent. 10: 404-6. Type f: Chile, Curicó Province, Palos Negros (Ottawa).

Chromocryptus tanaus Townes, 1969. Mem. Amer. Ent. Inst. 12: 180.

FEMALE. See original description in Porter 1967b: 404-6.

MALE. Differs from female as follows: Color: white on flagellomeres 12-18; on apex of propleuron; on percurrent blotch across pronotal collar; on basal 0.6 of scutellum; on most of subalarum; on a pair of large basolateral propodeal blotches (between area basalis and spiracle); on apical bands of gastric tergites 3-7 (more broadly than in female); on clasper; and on all coxae as well as on fore and mid trochanters.

Flagellum: 1st segment 5.0 as long as deep at apex; with tyloids oriented parallel to longitudinal axes of their segments and present on segments 15-19, with that of 15th segment sharply linear, of 16th long-oval, of 17 short-oval, and of 18-19 linear. Mesopleuron: lower prepectal ridge strong but blunt. Gaster: setae of 2nd tergite denser than in female, mostly overlapping.

NEW SPECIMENS EXAMINED. 1 m: CHILE, Curicó Province, Los Quenes, 4-18-I-1964, L. E. Peña (Townes).

FIELD NOTES. This rare but conspicuous ichneumonid has been collected only in Curicó and Linares provinces between 35° and a little more than 36° South Latitude on the Andean slopes of south-central Chile. These data situate the habitat of Periplasma tanaum in the Northern Valdivian Forest and the occidentally adjacent Southern Andean Cordillera regions as defined by Peña (1966: 11-12). Periplasma thus occupies the northernmost part of Chile's Nothofagus biome.

Future collecting may extend the range of Periplasma tanaum and additional specimens should appear among museum material mixed with Dotocryptus bellicosus, whose females strikingly resemble Periplasma in their long ovipositor, slender bodily proportions, and general coloration. Periplasma seems only distantly related to Dotocryptus, from which it differs radically in ovipositor tip structure, propodeal shape and areolation, mandibular proportions, and many other features

5. Genus XIPHONYCHIDION

Xiphonychidion Porter, 1963. Psyche 70: 117-9. Type: Cryptus cyanipennis Brullé. Monobasic.

Fore wing 6.5-17.0 mm long. Coloration black with a white or yellowish flagellar annulus and with variably developed white markings on head, body, and legs, as well as with the wings deeply infumate. Flagellum elongate, in female bristleshaped with median segments faintly swollen, apical segments at most slightly flattened below, and 1st segment 4.7-6.5 as long as deep at apex but in male a little heavier and more bristleshaped, with ventral setae regularly spaced on all segments, tyloids ridge-like to ovoid and present on segments 13 (14)-20 (21-22), tyloidal ridges sometimes on 2 or 3 segments diverging a little from longitudinal axis of flagellum, and with 1st segment 3.3-3.9 as long as deep apically. Front weakly to rather prominently excavated, dorsal tentorial pits obsolete. Face 1.3-1.7 as wide between eyes just below antennal sockets as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus: in profile low to rather high, asymmetrically subpyramidal, bluntly pyramidal, or sometimes almost nasute; its corners a little reflexed; its apical margin truncate to gently convex; its width 3.0-3.3 its height. Occipital carina: sharp, low to conspicuously elevated laterally and ventral, joining the weakly to strongly elevated hypostomal carina below. Malar space: 0.45-0.80 as long as basal width of mandible. Mandible broad and stout, evenly and strongly tapering from base to apex, 2.0-2.6 as long as wide across base of teeth, teeth subequal or upper tooth slightly longer than lower. Pronotum on dorsal margin a little swollen and with a conspicuous, foveolate submarginal groove; epomia strong in scrobe and prolonged more or less strongly dorsad where its terminus often is surmounted by a swollen area or sometimes by a triangular plate that is bordered by the mesally directed epomia itself; anterior margin below angled and with a stout tooth at angulation; anterior margin throughout emphasized by a low, sharp carina behind which there is no trough or submarginal transverse ridge or elevation. Mesoscutum with notauli shallow to sharp and narrow or sometimes present as broad and foveolate but very shallow bands, traceable 0.5-0.7 the length of the mesoscutum; surface mat or silky; sometimes with gross wrinkling along notauli and on peripheries of lateral lobes or sometimes smooth except for some longitudinal wrinkling rearward between notauli (sometimes practically without wrinkling); with numerous small to medium sized punctures that may be mostly subadjacent to a little sparser or adjacent to confluent or, in X. cyanipenne, with very dense and small punctures on the finely sculptured areas mesad on central and lateral lobes. Mesopleuron: subalarum horizontal, more or less crescentic, sometimes expanded; speculum smooth and shining or invaded by punctures and wrinkles; prepectal carina inclivous to partly vertical, weaker above upper 0.6 of mesopleuron but often recurved or sloping above and traceable to subalarum; prepectus below lower corner of pronotum with a prominent triangular, ligulate, or robustly tubercular excrescence; disc otherwise strongly to grossly reticulate with more or less conspicuous silky areas among the vermiculate wrinkles and in some species with a smoother area above between prepectal carina and speculum; sternaulus percurrent, broad and sinuate, shallower but wider on apical 0.4. Hind coxa with a deep groove reaching down from its attachment. Female fore tibia not or weakly inflated. Wing venation: areolet large, 1.0-1.2 as high as wide, intercubiti parallel to strongly convergent above, 2nd abscissa of radius 0.5-1.0 as long as 1st intercubitus; discocubitus vaguely to (more often) conspicuously broadly angled, ramellus often present and frequently very long, 1st recurrent often sinuate and in many species sharply discrete from 1st abscissa of cubitus, longitudinal outline of discocubital cell varying from almost parallel-sided to (often) skewed; 2nd recurrent vertical or (more often) a little curved and inclivous, sometimes more strongly curved on its upper 0.5, often inserted a little before middle of areolet; mediella beyond base practically straight; axillus weakly to strongly divergent from anal margin of hind wing. Groove between metanotum and propodeum narrow and deep in female, broader and more open in male; the sublateral excresences carinately suggested but not conspicuous on metanotal face, absent on propodeal face. Propodeum: in female with profile short and high to a little elongate, the apical face discrete and vertical; spiracle 1.7-2.7 as long as wide; both basal and apical trans-carinae sometimes well defined throughout, more often traceable but irregular (the apical tending to be weaker), or sometimes both carinae partially effaced; basal trans-carina curved well forward to a short, straight median abscissa, reaching about basal 0.3-0.4 of propodeal dorsum; area basalis with sides oblique to sub-parallel, more or less quadrate, gently descending to propodeal base; cristae large and strongly projecting ligulate, moderately to very strongly projecting subligulate, or broadly subcuneate; longitudinal carinae weak but bordering an obscurely hexagonal areola that is usually longer than wide (apical trans-carina thrust forward medially but not coming unusually close to basal trans-carina); male propodeum similar to that of female but more elongate and lower in profile. First gastric segment: petiole with a low and flange-like to large and subtriangular lateral projection at base, slender but with dorsum flat; in female with postpetiole 0.90-2.0 as wide apically as long from spiracle to apex, in male 0.8-1.2 as wide as long; with ventro-lateral carina strong throughout; dorso-lateral carinae usually well traceable on at least part of petiole and postpetiole; dorsal carinae in female often traceable on apex of petiole and about basal 0.6 of postpetiole, often strongest and enclosing a low median elevation on apex of petiole and base of postpetiole or often obsolete even here, although faintly bounding a weak median area. Second gastric tergite: shining with numerous to abundant tiny punctures which emit setae that sometimes overlap extensively in both sexes or are, more often, mostly shorter than the length of their interspaces in female and mostly at least a little overlapping in male; surface sculpture consisting of obscure or (occasionally) well defined micro-reticulation. Gaster: in female robustly fusiform, cylindric, and sometimes weakly compressed toward apex, in male elongately fusiform. Ovipositor slender to heavy, with sheathed portion 0.30-0.50 as long as fore wing; straight or decurved; nodus and notch distinct to absent; dorsal valve sometimes with pits or irregularities on tip; ventral valve with strong inclivously oblique ridges on tip; tip 0.18-0.38 as high at notch or summit of nodus as long from that point to apex.

RELATIONSHIPS. Xiphonychidion contains medium sized to large trachysphyroids easily recognizable by the possession of a high flange or tubercle on the lower prepectus. Its species also display the following additional singly or conjointly diagnostic features: mandible broad and short, tapering evenly and steeply toward apex; dorso-lateral margin of pronotum with a strong and foveolate submarginal groove; epomia strong in scrobe and prolonged some distance dorsad where it ends in a swollen area or even a discrete lamella; ventro-anterior margin of pronotum with a stout tooth at mid-height; mesoscutum on central lobe usually with at least a few strong wrinkles, sometimes extensively rugose; discocubitus usually angled, 1st recurrent often sinuate, ramellus often long; axillus divergent from anal margin of hind wing; petiole with a baso-lateral flange or expansion; dorsal carinae usually traceable on apex of petiole and base of postpetiole; 2nd gastric tergite silky with numerous to very abundant tiny punctures and sparse to dense setae.

In such features as its long (if sometimes weak) notauli, broad to very broad areolet, straight mediella, and elongate propodeal spiracle, *Xiphonychidion* may be allied to *Trachysphyrus*, *Aeliopotes*, *Aglaodina*, and/or to the *Violaceipennis* and *Xanthomerus* species groups of *Cosmiocryptus* (Porter 1985c, 1967a).

GEOGRAPHIC DISTRIBUTION. *Xiphonychidion* has 7 species, all of which are confined to the Neantarctic region of Chile from 29 degrees southward and to proximate areas of Argentina in Neuquén and Chubut Provinces between 40° and 45° South Latitude. One species attains Punta Arenas at 53 South, but the rest occur mostly between Santiago and Chiloé, with a few records for Coquimbo and Atacama on the north. Like many other Chilean trachysphyroids, this genus inhabits a vast spectrum of communities from desert scrub, to gallery formations in Mediterranean scrub, and forest glades or edges in wet *Nothofagus* communities.

KEY TO THE SPECIES OF *XIPHONYCHIDION*

1. Axillus only a little closer to anal margin of hind wing than to submediella; nervulus postfurcal; areolet very large and high, with intercubiti nearly parallel to moderately convergent above, 2nd abscissa of radius 0.8-1.0 as long as 1st intercubitus; postpetiole slender, 0.90-1.0 as wide apically as long from spiracle to apex in female, 0.80 as wide in male; 2nd gastric tergite with long, dense, much overlapping setae in female; petiole with a rounded or subtriangular baso-lateral expansion; mesoscutum with gross wrinkling along notauli and on peripheries of lateral lobes; epomia produced dorsad into a triangular lamella . . . . . 1. *X. cyanipenne* (Brullé)

1.' Axillus only weakly divergent from anal margin of hind wing; nervulus usually more or less interstitial; areolet with intercubiti weakly to moderately convergent above, 2nd abscissa of radius 0.5-0.9 as long as 1st intercubitus; postpetiole expanded, in female 1.3-2.0 as wide apically as long from spiracle to apex, 0.80-1.2 as wide in male; setae of 2nd gastric tergite mostly shorter than the length of their interspaces in female; petiole with a low and flange-like lateral expansion; mesoscutum without gross wrinkling along notauli and on peripheries of lateral lobes 2

2. Flagellum with a white band on segments 6 or 7 through 9 or 10; ovipositor without nodus or notch, dorsal valve on tip basally straight in profile and then more or less decurved toward apex, which may be a little swollen; propodeal cristae variable in shape and size, often strongly projecting ligulate 3

2.' Flagellum with a yellow or orange band usually beginning on segment 1, 2, 3, or 4 and terminating on 9, 10, 11, or 12; ovipositor with nodus usually distinct, notch almost always detectable, profile of dorsal valve on tip between notch and apex convex, straight, a little concave, or sinuate and with a more or less palpable apical swelling, but not decurved; propodeal cristae short subligulate or bluntly cuneate (males of the following species not reliably separable) . . 4

3. First flagellomere 5.7-6.0 as long as deep at apex; temple with a contrastingly more strongly punctate and (usually) wrinkled area on its lower 0.3; ovipositor tip profile (especially on dorsal valve) decurved . . . . 2. *X. atmetum* (Porter)

3.' First flagellomere 4.7-5.3 as long as deep apically; temple uniformly smooth; ovipositor tip scarcely decurved, dorsal valve with a very gradual and slightly convex taper toward apex . . . . 3. *X. nerhysum* (Porter)

4. Sheathed ovipositor 0.4-0.5 as long as fore wing; ovipositor straight, rather stout, compressed to depressed, dorsal valve tip taper straight to gently convex between notch and apex, tip 0.22-0.31 as high at notch as long from notch to apex; without a bluish sheen on body . . . . 7. *X. viduum* (Spinola)

4.' Sheathed ovipositor 0.3-0.4 as long as fore wing; tip 0.13-0.38 as high at notch as long from notch to apex, often more slender than described above or with an apical swelling; body sometimes with a bluish sheen 5

5. Ovipositor straight, slender, dorsal valve with a straight to slightly concave taper between notch and apex, tip 0.18-0.23 as high at notch as long from notch to apex; temple 0.4-0.5 as long as eye in dorsal view; mesopleuron with more uniformly reticulate and usually grosser, more complex wrinkling than in the following species, almost always without a smoother area above along prepectal carina opposite speculum; front orbit without a pale stripe . . . . 4. *X. horsti* (Brèthes)

5.' Ovipositor often decurved, stout to robust, more or less depressed; dorsal valve profile between notch and apex straight, a little convex, or sinuate, tip 0.29-0.37 as high at notch as long from notch to apex; temple 0.5-0.6 as long as eye in dorsal view; wrinkling of mesopleuron not as sharp and uniformly complex as described above, its upper anterior quadrant often with a smoother area along prepectal carina; front orbit often with a white or yellow stripe 6

6. Dorsal valve of ovipositor slightly to definitely concave in profile on basal 0.7 of tip and then vaguely to strongly and abruptly convex near apex so that in most specimens the tip shows an apical knob or bulb; body shining black, without a blue sheen; 2nd segment of maxillary palpus black . . . . 5. *X. stibarum* (Porter)

6.' Dorsal valve of ovipositor with a straight or slightly convex taper between notch and apex, never with an apical swelling; body shining black with a faint bluish sheen; 2nd segment of maxillary palpus usually largely white . . . . 6. *X. caeruleipenne* (Brullé)

CYANIPENNE SPECIES GROUP

Occipital carina a sharp but low flange throughout; epomia prolonged well above scrobe where it turns mesad to delimit a roughly triangular area; mesoscutum with notauli shallow, traceable 0.5-0.6 its length; mesoscutal surface with gross wrinkling along notauli and on peripheries of lateral lobes as well as with very dense small punctures on the finely reticulate areas centrad on lobes; mesopleuron with subalarum enlarged and broadly subtriangular; wing venation with areolet very large and high, with intercubiti almost parallel to gently convergent above so that 2nd abscissa of radius is 0.8-1.0 as long as 1st intercubitus, with ramellus very long and 1st recurrent sinuate, with nervulus often postfurcal, and with axillus only a little closer to anal margin of hind wing than to submediella; propodeum with both trans-carinae often more or less effaced and inconspicuous on the grossly reticulate surface, cristae aggressively projecting ligulate; first gastric tergite with a large, roundish to subtriangular latero-basal expansion, postpetiole only 0.80-1.0 as wide apically as long from spiracle to apex; gaster in female relatively elongate fusiform and on 2nd and following tergites with long and dense setae that impart a velvety lustre to surface; male gaster more elongate and more coarsely setose than in female; ovipositor with sheathed portion 0.40 as long as fore wing, straight basad and moderately decurved toward apex, stout and cylindric basad but becoming depressed apicad, without nodus or notch, dorsal valve on tip with a strongly convex profile and with numerous minute tubercles and irregularities, and with ventral valve on tip strongly cut by weakly inclivous ridges.

1. Xiphonychidion cyanipenne (Brullé)

(Fig. 22, 26-27, 34, 112, 191, 204)

Cryptus cyanipennis Brullé, 1846. In Lepeletier; Histoire naturelle des insectes. Hyménoptères 4: 188. Type f: Chile, Concepcion (lost).

Cryptus capensis Dalla Torre, 1902. Catalogus hymenopterorum, 3: 546 (Lapsus for cyanipennis).

Xiphonychidion cyanipenne Porter, 1963. Psyche 70: 118.

Trachysphyrus cyanipennis Townes, 1966. Mem. Amer. Ent. Inst. 8: 70.

Trachysphyrus cyanipennis Lanfranco, 1974. Anales Inst. Patagonia 5: 202.

FIELD NOTES. This very large and conspicuous species ranges from Santiago and Valparaíso (33° South Latitude) to Punta Arenas (53° South). It seems most characteristic of stream-side vegetation in semihumid to semiarid habitats, such as El Canelo in the Cajón de Maipo 20 km east of Santiago. It has been found in "bosque decíduo" at Punta Arenas. This community is a region with 400-600 mm annual rainfall, an altitudinal range of 0-400 m, and dominated floristically by the "lenga," Nothofagus pumilio with irregularly intermingled coigues, Nothofagus dombeyi.

ATMETUM SPECIES GROUP

Occipital carina weakly to often strongly raised laterad and ventrad; epomia with a broad and often semidifferentiated swelling above its upper end; mesoscutum with notauli shallow to rather sharp and narrow, 0.5-0.8 the length of mesoscutum; mesoscutal surface silky with fine and variably distinct micro-reticulation as well as with abundant, small, medium, or moderately large punctures that average subadjacent to a little sparser, which often are longitudinally slurred on central lobe and sometimes also grade into longitudinal wrinkling rearward between and behind terminus of notauli; mesopleuron with subalarum crescentic and not enlarged; wing venation with areolet large, its intercubiti weakly to sometimes strongly and differentially convergent above, with 2nd abscissa of radius 0.70-0.90 as long as 1st intercubitus, ramellus usually present and 1st recurrent sinuate, nervulus often interstitial, and with axillus much closer to anal margin of wing than to submediella; propodeum with both trans-carinae traceable throughout, strong to weak and irregularly detectable on the coarsely wrinkled surface; cristae moderately to aggressively projecting subligulate to ligulate; first gastric tergite at most with a low and flange-like baso-lateral expansion, postpetiole strongly expanded, 1.4-1.7 as wide apically as long from spiracle to apex in female, in male 0.9-1.2 as wide as long; gaster in female moderately stout fusiform, on 2nd tergite with many long but mostly well separated setae, but on 3rd and following tergites with denser and much overlapping setae; male gaster more elongate than in female and with setae generally longer and denser, those of 2nd tergite mostly equal or exceed the length of their interspaces; ovipositor with sheathed portion 0.30-0.40 as long as fore wing, straight, moderately stout to rather slender, more or less depressed, without nodus or notch, dorsal valve variable in profile, gently to rather strongly decurved and with some fine punctures or tubercular irregularities, ventral valve on tip depressed, sometimes a little decurved, with fine inclivously oblique ridges.

2. Xiphonychidion atmetum (Porter), new combination

(Fig. 115)

Trachysphyrus atmetus Porter, 1967. Mem. Amer. Ent. Inst. 10: 234-7.
Type f: Chile, Santiago, El Canelo (Townes).

Trachysphyrus atmetus Townes, 1969. Mem. Amer. Ent. Inst. 12: 183.

FIELD NOTES. Xiphonychidion atmetum spans central Chile from Valparaíso (33° South Latitude) to Valdivia (40° South) and extends from near sea level in the Coastal Range to 1500 or 2000 m on the Andean foothills. Of the entomofaunal regions defined for Chile by Peña (1966), this species inhabits the (southern) Coquimban Desert, Central Coastal Cordillera, Central Valley, Central Andean Cordillera, Northern Valdivian Forest, southern Andean Cordillera, Valdivian Forest, and the Valdivian Cordillera. It thus occurs in several types of Nothofagus association, as well as in gallery woods along water courses in Thorn Scrub and Semidesert.

3. *Xiphonychidion nerhysum* (Porter), new combination

(Fig. 116)

Trachysphyrus nerhysus Porter, 1967. Mem. Amer. Ent. Inst. 10: 237-8.
Type f: Chile, Llanquihue, Los Muermos Forest (San Francisco).

NEW SPECIMENS EXAMINED. 1 f: CHILE, Cautín Province, Pucón (Peninsula), 25-30-XI-1984, C. Porter, T. O'Neill, (Porter).

FIELD NOTES. Available records suggest that *Xiphonychidion nerhysum* is a southern vicariant of *X. atmetum*. It occurs in various types of *Nothofagus* forest (Valdivian Forest and Valdivian Cordillera of Peña 1966) between 39 and at least 44 South Latitude throughout the pre-coastal, central and eastern regions of Cautín, Valdivia, Osorno, and Llanquihue Provinces of Chile and in adjoining ecologically similar parts of southwest Argentina.

My specimen was taken on a peninsula at Pucón near the east end of Lago Villarrica on an ecotone between the Valdivian Forest and Valdivian Cordillera regions. The site has slightly disturbed *Nothofagus* forest intermingled with grassy tracts where the large trees remain bereft of understory shrubs. *Austrocedrus chilensis* also is conspicuous along the lake shore on some of the steeper banks at this locality. Some undergrowth in flower at the time of my visit included *Rhodophiala* sp., *Asteranthera ovata*, and *Mutisia spinosa*.

CAERULEIPENNE SPECIES GROUP

Occipital carina raised into a high flange; epomia prolonged dorsad of scrobe and with a well defined but not sharply delimited swelling above its upper end; mesoscutum with notauli relatively narrow and shallow, extending 0.6-0.7 or more its length; mesoscutal surface silky with variably perceptible micro-reticulation and with small to rather large, well defined, generally subadjacent or somewhat sparser punctures as well as often with longitudinal wrinkling rearward between notauli and behind their terminus; mesopleuron with subalarum crescentic and not expanded; wing venation with areolet large and broad, its intercubiti moderately to strongly convergent above; axillus much closer to anal margin of wing than to submediella; propodeum with both trans-carina more or less distinct on the strongly to coarsely wrinkled surface; cristae stout but strongly projecting short ligulate, bluntly subcuneate, or subligulate; first gastric tergite with at most a low and flange-like baso-lateral expansion, postpetiole expanded, 1.3-2.0 as wide apically as long from spiracle to apex in female, in male 0.8 as wide as long; gaster in female moderately stout fusiform, on 2nd tergite with rather long setae that may be mostly much shorter than the length of their interspaces, generally but not uniformly shorter than interspaces, or sometimes in great part subequal to length of interspaces; male gaster much more elongate than that of female and on 2nd and following tergites with longer and mostly overlapping setae; ovipositor with sheathed portion 0.30-0.50 as long as fore wing, straight to a little decurved, very robust to slender, distinctly compressed to heavy and cylindric or depressed, nodus and notch usually distinct, dorsal valve with a slightly convex, slightly concave, straight or weakly sinuate profile between notch and apex, ventral valve with fine, well spaced, inclivously oblique ridges on apex, tip 0.18-0.38 as high at notch as long from notch to apex.

4. *Xiphonychidion horsti* (Brèthes), new combination

Cryptus Horsti Brèthes, 1916. Rev. Chilena Hist. Nat. 20: 83.
Lectotype f: (labeled by C. Porter): Chile (Buenos Aires).

Trachysphyrus horsti Townes, 1966. Mem. Amer. Ent. Inst. 8: 71.

FIELD NOTES. This species has been recorded from several temperate Chilean localities between Santiago Province (33° South Latitude) and Cautín Province (39° South). It seems to be restricted to the central region and to the adjacent Andean foot hill biotic provinces, with preferred habitats doubtless in gallery woods and in the relatively warm Northern Valdivian Forest. It has been reared from several lasicocampid (*Macromphalia dedecora*) and cercophanid (*Cercophana frauenfeldi*, *Neocercophana philippi*), lepidopterans, as reported in my revision of *Trachysphyrus* (Porter 1967: 226-7).

5. *Xiphonychidion stibarum* (Porter), new combination

(Fig. 114)

Trachysphyrus stibarus Porter, 1967. Mem. Amer. Ent. Inst. 10:232-4.
Type f: Chile, Santiago, El Canelo (Cambridge).

NEW SPECIMENS EXAMINED. 1 f: Chile, Cautín Province, Pucón (Peninsula), 28-30-XI-1984, C. Porter, T. O'Neill, (Porter).

FIELD NOTES. *Xiphonychidion stibarum* occupies an extensive range in much of central and south-central Chile from the Pacific coast to the Andean foothills. It has been taken at many localities from Santiago (33 South Latitude) to the great island of Chiloé (43° South) and in biotic provinces as diverse as the Central Valley, Northern Valdivian Forest, Southern Andean Cordillera, Valdivian Forest, and the Valdivian Cordillera. The species seems to occur most often in open, sunny places along the edge of gallery woods or in disturbed *Nothofagus* forest. The circumstances of its capture at Pucón are detailed under the foregoing account of *X. nerhysum*.

6. *Xiphonychidion caeruleipenne* (Brullé), new combination

(Fig. 113)

Cryptus caeruleipennis Brulle, 1846. *In* Lepeletier: Histoire naturelle des insectes. Hyménoptères 4: 193. Type m: Chile (Paris).

Trachysphyrus caeruleipennis Townes, 1966. Mem. Amer. Ent. Inst. 8: 70.

FIELD NOTES. This species remains difficult to distinguish from *X. viduum* except by structure and proportions of the ovipositor. Records for putatively authentic specimens cover much of central Chile, between the coast and the Andean foothills, from Santiago on the north (33° South Latitude) to Concepción near 37° on the south. It seems thus primarily an inhabitant of the Central Valley, of the Northern Valdivian Forest, and of ecotones rising eastward toward adjacent Andean biomes.

7. *Xiphonychidion viduum* (Spinola), new combination

(Fig. 11, 21, 32, 33, 120, 197)

Ichneumon (*Cryptus*) *viduus* Spinola, 1851. *In* Gay, Historia física y política de Chile. Zoología 6: 491. Type f: Chile, northern provinces (lost).

Trachysphyrus viduus Townes, 1966. Mem. Amer. Ent. Inst. 8: 74.

NEW SPECIMENS EXAMINED. 2 f: Argentina, Neuquén Province, San Martín de los Andes, 17-XII-1968, C. Porter; Chile, Aconcagua Province, Termas de Jahuel nr. San Felipe, 16-19-X-1984, C. Porter, T. O'Neill (Porter).

VARIATION. The specimen from San Martín de los Andes (40° South Latitude on the Chilean border) differs in several respects from that cited for Jahuel at 33 degrees in central Chile. It has the flagellar annulus cream white rather than rich yellow, while the ovipositor tip is more slender and sagittate (0.22 as high at notch as long from notch to apex versus about 0.35 as high in the Jahuel material). Further collecting may show that additional species or subspecies should be recognized in the *Caeruleipenne* group.

FIELD NOTES. *Xiphonychidion caeruleipenne* ranges from Carrizalillo at 29° South in the Intermediate Desert entomofaunal region of Atacama Province (Peña 1966: 8-9) to near 40° South in Neuquén Province of Argentina and Valdivia Province in adjacent Chile. It occurs along the coast and up to the Andean foothills, crossing into Argentina via gaps in the lower southern Andes. It seems to prefer open glades or the forest edge. My Argentine specimen was taken on the north shore of Lago Lacar in partially cleared *Nothogafus* and *Austrocedrus* woods.

This species thus seems to be the most ecoplastic of its group and may be expected or has been encountered in eight of Peña's entomofaunal regions: the Intermediate Desert, Central Andean Cordillera, Coquimban Desert, Central Coastal Cordillera, Central Valley, Northern Valdivian Forest, Southern Andean Cordillera, and at the northern end of Valdivian Forest.

6. Genus *SCIOCRYPTUS* Porter, new genus

Type species: *Trachysphyrus lachnaeis* Porter.

Fore wing 10.0-11.4 mm long. Coloration dull metallic blue with some white on flagellum, head, and apical gastric tergites; wings moderately infumate. Female flagellum about as long as body, subtly thickened postmedially, faintly setaceous, not flattened below toward apex, its 1st segment 4.6-5.0 as long as deep at apex. Front broadly and shallowly excavated with dorsal tentorial pits obsolete. Face unusually broad, 2.0-2.2 as wide between eyes just below level of antennal sockets as high from top of anterior tentorial pit to bottom of antennal socket. Mandible long and narrow, 3.0-3.3 as long as wide across teeth, weakly tapering toward apex or almost parallel-sided, with a broad and deep basal excavation, its teeth subequal with the lower slightly longer than the upper. Clypeus in profile a little asymmetrically convex, weakly elevated, its apical margin gently convex with the corners flattened and subreflexed, its width 2.5 as long as its greatest height. Occipital carina fine and sharp throughout, joining the only slightly higher hypostomal carina below. Malar space 0.8-0.9 as long as basal width of mandible. Pronotum with humeral groove little impressed, marked by an apically narrowing band of transverse foveae; epomia confined to scrobe and there at most weakly differentiated from adjacent wrinkles; lower front margin broadly angled but without a tooth at mid-height; upper margin sublaterally and across front of collar bordered by a sharp and weakly elevated carina; dorso-median transverse swelling on collar a low band that is set off apically by shinier, depressed integument as well as by a faint groove and a line of irregularly developed foveae. Mesoscutum: notauli sharp and shallow, reaching 0.6-0.7 its length; surface mat with transverse wrinkling along notauli, in area behind notauli, and on peripheries of lateral lobes, but otherwise granularly micro-reticulate with numerous, irregularly intercalated, mostly well spaced large and variably well defined punctures that on central lobe become intermingled with much strong and irregular wrinkling. Mesopleuron with subalarum horizontal, broadly ellipsoid to stoutly crescentic, sometimes practically without carinae but punctate and in other specimens with strong longitudinal wrinkles; speculum throughout with strong wrinkling, or sometimes becoming narrowly smooth below; prepectal carina inclivous, more strongly so on lower 0.5-0.6 of mesopleuron and thence prolonged more or less irregularly to subalarum; no excrescence on lower prepectus; disc strongly and granularly reticulately wrinkled without differently sculptured or smooth spaces dorso-anteriorly; sternaulus reaching about 0.6 the distance to base of mid coxa and upcurved toward apex; entire pterothoracic venter flattened and abruptly discrete from pleura, nearly quadrate in cross section. Fore tibia not inflated. Hind coxa with a deep groove descending from its attachment. Female 4th tarsomeres at most weakly emarginate on apex, not deeply cut or bilobed. Wing venation: areolet large, intercubiti very strongly convergent above, 2nd abscissa of radius 0.4-0.5 as long as 1st intercubitus, areolet 0.9 as high as wide; discocubitus only feebly arched so that the 2nd discoidal cell is parallel-sided longitudinally; ramellus absent; 2nd recurrent slightly inclivous, nearly straight, inserted a little beyond middle of areolet; mediella practically straight; axillus far from anal margin of wing, at most slightly closer to anal margin than to submediella. Propodeum: spiracle 2.2-2.8 as long as wide; profile short and high with faces subequal and the apical face vertically declivous; basal trans-carina percurrent, strongly raised and thickened medially, where its median abscissa is thrust forward to basal 0.1-0.2 of propodeal dorsum, but laterally weaker and irregular; apical trans-carina similar to basal and strong medially (but far from basal carina) but laterally much weaker; cristae large and broad subligulate or briefly ligulate; area basalis short and broad, in profile strongly declivous to base of propodeum; areola large, broader than long to a little longer than broad in position, vaguely hexagonal and a little raised above surrounding surface but without well defined lateral carinae. First gastric tergite: faint baso-lateral flange on petiole; postpetiole elongate, gradually expanded apicad, only 1.0-1.1 as wide apically as long from spiracle to apex; ventro-lateral carina strong throughout; dorsal carinae traceable (sometimes sharp) toward apex of petiole and on basal 0.5 of postpetiole, where they enclose a very low median elevation; surface of postpetiole shining, finely but strongly micro-reticulate but smoother near apex, and with scattered medium sized to large, obscure to sharp punctures which are most distinct apicad. Second gastric tergite shining with very fine but uniformly distinct micro-reticulation and widely spaced, obscure to well defined, medium sized punctures that emit moderately long setae which mostly fall short of the length of their interspaces. Gaster deplanate, increasingly flattened from 2nd segment to apex. Ovipositor 0.20 as long as fore wing; straight, strongly compressed; nodus distinct and with a tiny notch; dorsal valve with taper gently concave between notch and apex; ventral valve with fine vertical to inclivously oblique ridges on tip; tip 0.19-0.22 as high at notch as long from notch to apex. Vestiture: head, mesosoma, and coxae with unusually long, often shaggy and tangled setae.

MALE. Unknown.

GENERIC NAME. From the Greek noun scius, "shadow" and Cryptus, a generic name employed for many Holarctic species of the Trachysphyrus complex.

RELATIONSHIPS. Sciocryptus differs from other South American trachysphyroid genera in such features as its narrow and basally excavated mandible; obsolete epomia and dorsal groove of pronotum; upcurved sternaulus; quadrate pterothoracic cross section; dorsally much narrowed areolet; long and scarcely arched discocubitus with no ramellus or discontinuity between 1st recurrent and 1st abscissa of cubitus; elongate and longitudinally almost parallel-sided 2nd discoidal cell; practically straight mediella; axillus far removed from anal margin of hind wing; basal trans-carina of propodeum abruptly raised medially to buttress hind margin of area basalis; slender female postpetiole; gaster notably deplanate from 2nd segment to apex; and very short, strongly compressed ovipositor.

This genus seems isolated among the South American trachysphyroids. Its closest relative may be Nothischnus (Porter 1967b: 396-400), recorded only from Ñuble, Arauco, and Cautín Provinces in central and south-central Chile. Nothischnus resembles Sciocryptus because of its weak epomia and obsolete pronotal submarginal groove; at most gently arched discocubitus and elongate 2nd discoidal cell; anteriorly narrowed areolet; crested median segment of basal trans-carina on propodeum; slender female postpetiole; somewhat deplanate gaster; and short, compressed ovipositor. These similarities, nonetheless, may be the result of convergent evolution, since Nothischnus differs notably from Sciocryptus in such characters as its broad and basally unmodified mandible; nearly straight sternaulus; arched mediella; axillus close to anal margin of hind wing; round propodeal spiracle; and reclivously oblique ridges on the ventral valve of the ovipositor tip.

1. *Sciocryptus lachnaeis* (Porter)

(Fig. 35-38, 190, 203)

Trachysphyrus lachnaeis Porter, 1967. Mem. Amer. Ent. Inst. 10: 196-8.
Type f: Chile, Magallanes Province, Natales, Laguna Amarga (Townes).

This large, slow-flying, dull metallic blue trachysphyroid has no close relatives among other New World Mesostenini. It constitutes an aberrant and monotypic genus.

NEW SPECIMENS EXAMINED. 20 f: ARGENTINA, Neuquén Province, Pucará near San Martín de los Andes, 10-17-XII-1967, C. Porter, XII-1969, S. Schajovskoi, in Malaise Trap.

FIELD NOTES. My specimens were netted in deep *Nothofagus* forest, often on trunks of living trees or around piles of dead wood.

The collecting locality was at Lago Lacar in southwest Argentina within a few km of the Chilean border. This site occupies an ecotone between the Valdivian and Deciduous Forest Districts of the Subantarctic Life Zone (as these communities are defined by Cabrera and Willink 1973: 97-101). Dominant flora around Lago Lacar include the deciduous *Nothofagus pumilio*, *N. antarctica*, *N. obliqua*, and *N. procera*, the evergreen *N. dombeyi*, the hygrophile myrtacean tree, *Myrceugenella apiculata*, bambusaceans of the genus *Chusquea*, and the gorgeously beflowered onagracean shrub, *Fuchsia magellanica*. The climate here is cool, wet, and almost unrelentingly windy. The annual temperature averages 10 C, and yearly rainfall approaches 2000 mm. Summer is fleeting, with occasional maxima of 22°-25° C registered between November and February, but winters are mild, with average minima not much below freezing.

Ichneumonidae abound at Lago Lacar, where they fly from September to May, with a massive and abrupt peak in December. In addition to *Sciocryptus*, some prominent ichneumonid genera in this habitat are *Calliephialtes*, *Eruga*, *Polysphincta*, *Coccygomimus*, *Netelia*, *Clasis*, *Certonotus*, *Macrogrotea*, *Bilira*, *Surculus*, *Anacis*, *Dochmidium*, *Dotocryptus*, *Itamuton*, *Alophophion*, *Scallama*, *Thymebatis*, and many others.

Prior records show that *Sciocryptus lachnaeis* ranges from 40° South Latitude on the cooler Argentine side of the Andes as far as 54° South on Seno Otway near Punta Arenas, Chile. It thus is restricted to the coldest part of the Neantarctic Biogeographical Province.

7. Genus *TRACHYSPHYRUS*

Type species *Trachysphyrus imperialis* Haliday. Monobasic.

Fore wing 6.0-16.0 mm. Coloration with head, mesosoma, and gaster refulgent blue, purple, green, golden, or varicolored metallic; head sometimes with white markings, no white on mesosoma, gaster only in *T. venustus* with white areas; flagellum with or without a white band; legs dark, often with metallic reflections or sometimes mostly orange, male hind tarsus in some species partly white; wings infumate with metallic reflections (never with contrasting light and dark bands or blotches). Female flagellum shorter than body, moderately long and slender, subtly enlarged for some distance postmedially but then gradually tapered to apex, weakly setaceous, 1st segment 3.5-5.5 as long as deep at apex; in male usually a bit longer than body, delicate to robust, regularly setaceous, with tyloids on segments 12(15)-20(22), most tyloids follow longitudinal axis of their segments, tyloids in shape varying from all sharp and ridge-like to often in part elliptic, ovoid, or even round, 1st segment 2.2-3.5 as long as deep at apex. Front much excavated, shining throughout or sometimes shining on lower 0.3-0.5 and mat dorsad, often with fine transbiased wrinkling on part of lower 0.5 and becoming strongly, irregularly wrinkled above toward stemmaticum. Face 1.6-2.2 as wide as high from top of anterior tentorial pit to bottom of antennal socket. Malar space in female 0.90-1.8 as long as basal width of mandible, in male 0.80-1.5 as long. Mandible stout, evenly and gently to strongly tapered between base and apex, 1.8-2.5 as wide across base of teeth as long; teeth subequal or the lower a little shorter than the upper. Clypeus large; in profile varying from almost flat to rather high convex or even subpyramidal; its apical margin straight to convex, edentate, or sometimes a little produced and bituberculate on meson, weakly differentiated with its corners narrow to broad but weakly reflexed. Pronotum with humeral groove well defined, percurrent, foveolate, variably impressed and sometimes narrowed apicad; epomia usually sharp in scrobe but never turned mesad above scrobe; lower pronotal margin bluntly angled but not toothed; upper front margin sublaterally and across front or collar elevated laterad into a sharp and translucent carina that may continue as such across collar or become much less elevated (but still sharp) mesad; dorso-median transverse swelling of collar well defined but low, set off posteriorly by a fine groove and/or row of foveae. Mesoscutum with notauli usually strong, reaching 0.3 to 0.9 its length (often ending near middle); surface mostly smooth and shining, sparsely to densely but not grossly punctate, never strongly wrinkled or extensively mat. Mesopleuron with subalarum horizontal, elongate to robustly elliptic, often subcarinate, but rarely sharp along entire summit; prepectal carina more or less inclivous, strong at least to upper 0.6 of mesopleuron and often traceable (sometimes recurved) up to subalarum; lower prepectus without an excrescence; speculum usually smooth and polished, occasionally invaded by puncto-reticulation, lower front corner of speculum with a small pit that is connected by a fine, horizontal carina to the mesopleural suture; surface wholly or in part (sometimes with smooth areas) finely to grossly and usually reticulately wrinkled; sternaulus percurrent, gently sinuate, becoming a little broader and contrastingly shallower on apical 0.4-0.5. Hind coxa with a broad and shining but short groove extending obliquely beneath its attachment. Female front tibia never inflated. Female 4th tarsomeres on front leg with a moderately deep V-shaped apical emargination, on mid and hind legs with progressively weaker emargination. Metanotum at most gently convex in profile, with strong baso-lateral fossae which are round to transverse, usually separated on meson by less than the width of 1 fossa. Groove between metanotum and propodeum deep and narrow in female, only a little wider in male, a little overhung by metanotal rim mesad, with the submedial tubercles visible as subconic tubercles or broad bosses on both metanotal and propodeal face, those of metanotal face usually strongest in female and those on propodeum often best developed in male; sublateral excrescences not clearly differentiated among other carinae on metanotal face and absent on propodeal face. Wing venation: areolet large to very large, intercubiti almost parallel to moderately convergent above, 2nd abscissa of radius 0.7-1.2 as long as 1st intercubitus, areolet usually a little higher than wide; 2nd recurrent gently reclivous, practically straight or arched in course; discocubitus gently and evenly arched, weakly sinuate, or sometimes broadly angled, ramellus varying from absent to strongly developed; brachiella strong, sclerotized to or almost to margin of hind wing; axillus far from anal margin of hind wing, about intermediate between anal margin and submediella. Propodeum with spiracle very elongate, 2.0-3.0 as long as wide; profile varying from short and high with apical face almost vertically declivous and sharply discreet to moderately elongate and sloping rearward; basal trans-carina varying from sharp throughout to sharp medially and irregular laterally, or vague throughout, or absent, gently to strongly curved or angled forward on its lateral abscissae and with the median abscissa straight and comparatively long; apical trans-carina vague to well developed, its lateral abscissae curved or angled forward weakly to strongly and ending in a long, straight median abscissa, so that the areola may be definitely broader than long (sometimes much broader in species where the trans-carinae are relatively proximate mesad); cristae varying from low and broad subcuneate or subligulate to much projecting ligulate; area basalis broader than long, its apex broad (not pointed or narrowly truncate). First gastric segment: without a baso-lateral expansion on petiole; postpetiole in female 1.1-2.3 as wide apically as long from spiracle to apex, in male 0.7-1.7 as broad; ventro-lateral and dorso-lateral carinae usually strong throughout; dorsal carinae varying from obsolete to at least partly sharp on apex of petiole and basal part of postpetiole; sides of petiole between the longitudinal carinae usually with vertical wrinkles. Second gastric tergite smooth and polished, with vague to well defined micro-reticulation which only in restricted areas may become dense and conspicuous enough to render part of the surface shagreened or faintly mat (entire surface mirror-like in many species); female with widely scattered and short setae emitted by mostly tiny, obscure punctures or sometimes with denser (only rarely and sporadically as large as medium sized) punctures which sometimes in part average only a little shorter than the interspaces; male either with uniformly short setae or sometimes with setae long and uniformly overlapping. Ovipositor with sheathed portion 0.50-0.90 as long as fore wing; moderately stout, palpably compressed; nodus more or less distinct; notch weak to large and deep; tip 0.16-0.24 as high at notch as long from notch to apex; ventral valve on tip with fine, sharp, well spaced, inclivously oblique ridges.

SPECIES INCLUDED. In its present restricted sense *Trachysphyrus* comprises the following species from Andean and temperate South America: *Trachysphyrus aegla* Porter (1985a), *T. agalma* Porter (1985a), *T. agenor* (Porter 1967a), *T. aglaus* Porter (1967a), *T. carrascoi* Porter (1967a), *T. chalybaeus* (Taschenberg 1876), *T. escomeli* (Brèthes (1918) 1919), *T. florezi* Porter (1967a), *T. imperator* Porter (1967a), *T. imperialis* Haliday (1836), *T. irinus* Townes (1966), *T. metallicus* (Cameron 1903), *T. praeclarus* Porter (1969a), *T. peñai* Porter (1967a), and *T. venustus* Myers.

GEOGRAPHIC DISTRIBUTION. Of the 15 species in *Trachysphyrus*, 9 occur between 2800 and 4000 m in the Andes of Perú, Bolivia, north Chile and northwest Argentina. The rest are confined to central and/or south Chile, except that *T. agenor* enters and *T. chalybaeus* is limited to semiarid habitats in neighboring Argentina. These inhabit mainly areas between sealevel and 2000 m, but *T. agenor* reaches 3000 m and is reported on both sides of the Andes between Santiago, Chile and Mendoza, Argentina. *Trachysphyrus imperialis* reaches Tierra del Fuego and the closely related *T. peñai* is restricted to the tip of South America between 51° and 55° degrees South Latitude, with an isolated population on the Falkland Islands.

RELATIONSHIPS. *Trachysphyrus* appears closely related to the South American genera *Aeglocryptus* and *Aeliopotes*. It also shows affinity to *Compsocryptus*, a large genus of xerophile trachysphyroids best represented in Sonoran North America but with disjunct species in the Argentine Chaco, the Peruvian Coastal Desert, the Greater Antilles, and southern Florida. *Compsocryptus* may be the oldest of this assemblage and possibly dates from xerothermic periods as long ago as the Oligocene. *Aeliopotes*, *Aeglocryptus*, and *Trachysphyrus* may be more recent offshoots of the *Compsocryptus* stock, which originated in response to the increased desertification and, finally, the climatic cooling and glaciations of the late Tertiary and Pleistocene.

KEY TO THE CHILEAN SPECIES OF *TRACHYSPHYRUS*

FEMALES

(Female of *T. aegla* unknown)

1. Head and apex of gaster mostly white; apical margin of clypeus gently produced and bilobed medially . . . . 1. *T. venustus* Myers

1.' Head at most with narrow white marks; no white on gaster; apical margin of clypeus entire, at most slightly produced medially 2

2. Nodus of ovipositor tip with a large and deep notch that is prolonged anteriad by a deep groove; propodeal cristae not broadly projecting, rather inconspicuously subligulate or subcuneate; notaulus reaching about 0.5 the length of mesoscutum 3

2.' Nodus of ovipositor tip with a weak and shallow or sharp and tiny to large notch which does not emit an anteriorly prolonged groove; propodeal cristae often larger and notauli often longer than described above 4

3. Dorsal valve of ovipositor rippled on tip, profile of dorsal valve between notch and apex slightly concave basad but apicad a little convex, sheathed portion of ovipositor 0.80-0.90 as long as fore wing . . . . 2. *T. carrascoi* Porter

3.' Dorsal valve smooth or slightly wrinkled on tip, its profile directly declivous between notch and apex, sheathed portion of ovipositor 0.70-0.80 as long as fore wing . . . . 3. *T. metallicus* (Cameron)

4. Flagellum uniformly dark; malar space 1.2-1.8 as long as basal width of mandible; both trans-carinae of propodeum often sharp throughout, areola often much wider than long 5

4.' Flagellum with a white annulus; malar space usually 0.90-1.3 as long as basal width of mandible; trans-carinae of propodeum weaker, often broken up, especially laterad, areola often only slightly wider than long 6

5. First flagellomere 3.8-4.0 as long as deep apically; malar space 1.2-1.5 as long as basal width of mandible; nervellus usually broken near or moderately below middle, upper part 1.1-1.3 as long as lower; hind tibia largely orange, its exterior surface slightly convex or moderately flattened toward apex . . . . . 4. *T. imperialis* Haliday

5.' First flagellomere 4.5-5.5 as long as deep at apex; malar space 1.5-1.8 as long as basal width of mandible; nervellus usually broken well below middle, upper part 1.3-1.9 as long as lower; hind tibia mostly dark, its exterior surface usually strongly flattened or even a little concave . . . . 5. *T. peñai* Porter

6. Flagellum with a white annulus on segments 4-8; notaulus 0.8 the length of mesoscutum; mesopleuron and propodeum with moderately strong reticulate wrinkling; dorsal valve of ovipositor with a slightly convex profile between notch and apex . . . 6. *T. escomeli* (Brèthes)

6.' Flagellum with a white or yellow annulus developed at least in part on segments 1-8 or much more; notaulus 0.3-0.7 length of mesoscutum; mesopleuron and propodeum coarsely to grossly reticulate; dorsal valve of ovipositor with a straight or slightly concave profile between notch and apex 7

7. Areolet asymmetric, apical abscissa of cubitus inserted unusually far dorsad; 1st flagellomere 3.2 as long as deep at apex; notauli unusually short, reaching 0.3 the length of mesoscutum; dorsal carinae only faintly suggested in supraspiracular region and scarcely delimiting a median elevation; head and mesosoma cupreous purple with some dark blue reflections . . . . 7. *T. agalma* Porter

7.' Areolet normal; 1st flagellomere 3.5-5.5 as long as deep at apex; notauli traceable 0.5-0.7 the length of mesoscutum; dorsal carinae distinct (weak and blunt to fine and sharp) on apex of petiole and base of postpetiole, where they enclose a median area; head and mesosoma metallic blue, blue-green or violet, sometimes with cupreous purple reflections 8

8. Fore tibia extensively pale brown; segments 3-5 of hind tarsus dull yellow or pale brown; apical darkening of flagellum begins abruptly on 9th or 10th segment; 1st flagellomere averages 4.9 as long as deep at apex; dorsum of hind coxa confluently punctured and weakly to moderately wrinkled . . . . 8. *T. irinus* Townes

8.' Fore tibia at most dull brown below; hind tarsus uniformly dark; apical darkening of flagellum begins gradually between 13th and 20th segments; 1st flagellomere averages 3.6 as long as deep at apex; dorsum of hind coxa grossly reticulately wrinkled . . . . 9. *T. agenor* Porter

MALES

1. Head and gaster conspicuously white marked; apical margin of clypeus a little produced and feebly bisinuate . . . . . 1. *T. venustus* Myers

1.' Head not or narrowly white marked, no white on gaster; apical margin of clypeus entire 2

2. Setae of 2nd gastric tergite mostly shorter or much shorter than their interspaces 3

2.' Setae of 2nd gastric tergite mostly (not always uniformly) equalling or exceeding the length of their interspaces 5

3. Flagellum with a white band; notaulus reaching 0.3-0.5 the length of mesoscutum; malar space 0.70-0.80 as long as basal width of mandible . . . . 7. *T. agalma* Porter

3.' Flagellum entirely dark; notaulus reaching 0.7-0.9 the length of mesoscutum; malar space 1.0-1.5 as long as basal width of mandible 4

4. Malar space 1.0-1.2 as long as basal width of mandible; post-petiole 0.9-1.2 as wide apically as long from spiracle to apex; hind tibia pale orange, more or less blackish apicad, its exterior surface only weakly flattened to slightly concave . . . . 4. *T. imperialis* Haliday

4.' Malar space 1.3-1.5 as long as basal width of mandible; post-petiole 1.3-1.4 as wide apically as long from spiracle to apex; hind tibia dark or at least extensively dark stained throughout, its external surface strongly flattened and often a little concave . . . . .5. *T. peñai* Porter

5. Mesoscutum highly polished with numerous small to large punctures separated mostly by much more than their diameters; ground color cupreous purple . . . . 10. *T. aegla* Porter

5.' Mesoscutum shining and with abundant small to large punctures which in large part are separated by little more than their diameters . . . 6

6. Head and body uniformly metallic blue with at most the mesoscutum purple; flagellum with a broad, deep yellow annulus beginning between 1st and 6th segments and extending over at least 10 segments; dorsal carinae of 1st gastric tergite usually traceable, sometimes sharp, on apex of petiole and base of postpetiole 7

6.' Blue, blue-green, cupreous purple, or purple with gaster blue or blue-green; if blue, with a short white flagellar annulus starting on segments 10, 11, or 12 and extending over 7 or fewer segments; dorsal carinae of postpetiole very often absent or weak 8

7. Fore tibia extensively pale brown; hind femur often largely orange; notaulus usually rather broad and shallow and not reaching much more than 0.5 the length of mesoscutum; hind coxa punctate and more or less weakly wrinkled above; subgenital plate without discrete lateral margins, hind margin curving around to meet front edge in an almost uninterrupted arc . . . . 8. *T. irinus* Townes

7.' Fore tibia at most dull brown below; hind femur always dark; notaulus often sharp and narrow and reaching 0.6-0.8 the length of mesoscutum; hind coxa grossly reticulate above; subgenital plate with distinct, parallel lateral margins . . . . 9. *T. agenor* Porter

8. White flagellar annulus on segments 11 or 12-16, 17, or 18; hind tarsomeres 3-4 white; malar space 0.60-0.80 as long as basal width of mandible; propodeal cristae low and weakly projecting, broadly subcuneate and prolonged a short distance anterio-mesad by a trace of the apical trans-carina . . . . 2. *T. carrascoi* Porter

8.' White flagellar annulus beginning on any segment from 2-11 and extending as far as 17 or 18; no white on hind tarsus; malar space 0.80-1.0 as long as basal width of mandible; propodeal cristae moderately projecting, subligulate or subcuneate, not prolonged anterio-mesad . . . . 3. *T. metallicus* (Cameron)

4. *Trachysphyrus imperialis* Haliday

(Fig. 150)

Trachysphyrus imperialis Haliday, 1836. Trans. Linnean Soc. London 17: 317. Type f: Chile, Puerto del Hambre (= "Port Famine"). (London).

FIELD NOTES. This species and its more austral relative, *T. peñai*, range through the Patagonian Steppe of southern Argentina and subantarctic Chile. They also inhabit the ecotone between Patagonian Steppe and *Nothofagus* forest, recognized by Peña (1966: 15-6) as a distinct biotic province, the Magallanes Interoceanic Region. I have not observed *T. imperialis* personally but did visit Punta Arenas, Chile, in February 1986 and collected other trachysphyroids (*Neocryptopteryx metriurus*, *Itamuton magallanes*, and *Chilecryptus rhadinus*) at sites where *T. imperialis* also has been taken. In such localities (e.g., Parque Chabunco at Punta Arenas) woods of *Nothofagus betuloides* interdigitate with the gramineous and composite Patagonian flora. Here, ichneumonids may be taken in some abundance on *Baccharis* and in the tall grass, wherever the *Nothofagus* provides a windbreak facing the sun. High wind constitutes a major limiting factor for flying insects throughout Patagonia and Tierra del Fuego, where anemometer readings of 50-100 km/hr may persist for days on end. On the other hand, with summer temperatures rarely above 15° C and often at less than 10° C, cold is a powerful abiotic determinant, so that few Hymenoptera frequent the denser *Nothofagus* woods.

8. Trachysphyrus irinus Townes

(Fig. 3, 39-43, 45, 118, 169, 177)

Ichneumon (Cryptus) splendidus Spinola, 1851. In Gay: Historia física y política de Chile. Zoología 6: 490. Type f: Chile, Coquimbo, Santa Rosa (Turin). Name preocc. by Fabricius, 1794.

Trachysphyrus irinus Townes, 1966. Mem. Amer. Ent. Inst. 8: 71. New name.

Trachysphyrus irinus Porter, 1967. Mem. Amer. Ent. Inst. 10: 288-92.

NEW SPECIMENS EXAMINED. 6 f and 32 m: CHILE, Atacama Province, ca. Carrizal Bajo, 4-6-X-1984, C. Porter, T. O'Neill; Coquimbo Province, 14 km east of Huanta ca. Puente Balalá, 2-3-X-1984, C. Porter, T. O'Neill.

FIELD NOTES. This magnificent ichneumonid is limited to central and north-central Chile from about 27° South Latitude in Atacama Province to nearly 38° South in the Cerros de Nahuelbuta of Malleco. It shows an altitudinal span from sealevel to 2300 m and thus occurs in almost every northern Neantarctic biome (Intermediate Desert, Coquimban Desert, Central Valley, Central Coastal Cordillera, Northern Valdivian Forest, and perhaps also the Pehuenar). My own specimens have been swept from grass beneath Acacia and other xerophilous shrubs or in open weedy spots some distance from the woods edge in forested river valleys. The species proved abundant in tall grass partly shaded by Thorn Scrub at Jahuel on the eastern edge of the Central Valley in dry Andean foothills during October 1984. Most individuals began to fly between 8 and 9:00 AM, became abundant for the rest of the morning, but dropped off markedly in the early afternoon, as temperatures approached 30° C.

Like most Chilean ichneumonids, Trachysphyrus irinus is highly seasonal, with most records between October and November, but practically disappears after December.

8. Genus AEGLOCRYPTUS Porter, new genus

Type species: Cryptus nigricornis Brullé

Fore wing 5.9-13.0 mm long. Coloration with head, mesosoma, and gaster metallic blue, cupreous, or purple and often with gold, gold-green, or bronzy reflections; head sometimes with white on orbits, mesosoma and gaster without pale markings; flagellum with or without a white band; legs dark (partly with metallic reflections) or sometimes extensively orange, male hind tarsus in some species partly white; wings dark with metallic reflections. Female flagellum with 1st segment 3.6-5.2 as long as deep at apex; male flagellum with tyloids sharply linear to elongately elliptic, 1st segment 2.5-3.7 as long as deep at apex. Clypeus moderately low to rather high symmetrically convex or sometimes subpyramidal in profile; its apical margin intact and straight to gently convex. Mesoscutum with notauli sharp, narrow, and reaching 0.8-0.9 its length. Mesopleuron with speculum mostly smooth and polished. Wing venation: areolet with intercubiti slightly to definitely (often a little differentially) convergent above, 2nd abscissa of radius 0.7-0.9 as long as 1st intercubitus. Propodeum in female short and high, faces subequal in length, the basal weakly to moderately sloping behind, the apical vertically declivous; area basalis pointed or narrowly truncate behind; both basal and apical trans-carinae varying from moderately strong throughout to almost absent, the apical carina sometimes stronger than the basal, when distinct swept strongly forward to a transverse median abscissa that is comparatively short and rather close to the basal trans-carina, so that the areola is only a little wider than long or somewhat longer than wide in position; cristae definitely projecting, rather small to large, subcuneate, subligulate or ligulate; in male with profile often lower and longer than in female and with the cristae sometimes larger. First gastric segment with dorsal carinae distinct, often sharp, and enclosing an elevated median field toward apex of petiole and on base of postpetiole. Second gastric tergite mat, finely granulate, in female with numerous small, very superficial punctures emitting short and scattered setae, in male with setae sometimes almost as widely spaced as in female but in many cases much longer and generally equalling or exceeding the length of their interspaces.

GENERIC NAME. From the Greek noun *aegla*, "lustre, splendor, glory" and the generic name *Cryptus*, which often has been used for species in *Aeglocryptus* and related taxa.

SPECIES INCLUDED. *Trachysphyrus achrysus* Porter (1967a), *Trachysphyrus cleonis* Viereck (1913), *Cryptus nigricornis* Brullé (1846), *Cryptus viridis* (Brullé 1846=*Cryptus kinbergi* Holmgren, 1868). All are NEW COMBINATIONS in *Aeglocryptus*.

RELATIONSHIPS. *Aeglocryptus* contains large, brilliantly metallic ischnines which resemble and probably are related to the sympatric genus *Trachysphyrus*. It differs from *Trachysphyrus* especially in the uniformly granular micro-reticulation of its 2nd gastric tergite. Other helpful but often polythetic diagnostic features of this genus include the uniformly very narrow tyloids on the male flagellum; the sharp and nearly percurrent notauli; the averagely shorter 2nd abscissa of the radial vein; and the short and high female propodeum with often small but well projecting cristae, with the area basalis pointed or narrowly truncate at its apex, and with the median abscissa of the apical trans-carina short and relatively close to the basal trans-carina.

Some *Trachysphyrus*, especially *T. chalybaeus*, have micro-reticulation on the female second tergite and centro-basally may show some faintly mat areas. Even in these cases the greater part of the 2nd tergite is brilliantly polished; whereas, all species of *Aeglocryptus* have the entire tergal surface in both sexes uniformly micro-granulate.

GEOGRAPHIC DISTRIBUTION. This genus is confined to subequatorial South America from the Puna of central Perú to Neantarctic Chile on the west and through Bolivia, Uruguay, and Argentina to the Strait of Magellan on the east. It avoids Tropical Wet Forest and Tropical Deciduous Forest but otherwise has some representation in almost every habitat type from sealevel to 4000 m.

KEY TO THE CHILEAN SPECIES OF *AEGLOCRYPTUS*

1. Head and body metallic blue, legs mostly black; no white on flagellum; mesoscutum with abundant, sharp, medium sized punctures which are adjacent to subadjacent on central lobe, especially anteriad, but which become more or less sparser laterally and behind; temple in dorsal view a little to moderately receding behind eye, gently rounded-off . . . . 1. *A. nigricornis* (Brullé)

1.' Head and body purplish cupreous with subdued blue reflections; legs with femora and tibiae mostly pale orange; flagellum usually with a white band; mesoscutum with abundant, sharp, medium sized punctures almost uniformly distributed (only rarely averaging a little sparser laterad and behind); temple in dorsal view often strongly receding and scarcely rounded . . . . 2. *A. viridis* (Brullé)

1. *Aeglocryptus nigricornis* (Brullé), new combination

(Fig. 152)

Cryptus nigricornis Brulle, 1846. *In* Lepeletier: Histoire naturelle des insectes. Hyménoptères 4: 193. Type: m, Chile (Paris).

Trachysphyrus nigricornis Porter, 1967. Mem. Amer. Ent. Inst. 10: 310.

FIELD NOTES. *Aeglocryptus nigricornis* occurs from about 31° South Latitude in Chile's Coquimbo Province south to near 39 degrees in Malleco Province of Chile and Neuquén Province in adjacent Argentina. It thus occupies the Coquimban Desert, Central Coastal Cordillera, Central Valley, Northern Valdivian Forest, and possibly the Pehuenar faunal regions (as defined by Peña 1966). Specific locality data and my own experience (Porter 1967: 312) show that *A. nigricornis* ranges through semiarid scrub to humid *Nothofagus* forest, but occurs mostly in exposed grassy microhabitats and thus in the southern part of its distribution becomes increasingly limited to fields, clearings, and the forest edge. It is a low altitude species with many records between sealevel and 1500 m but none from above 2000 m.

2. *Aeglocryptus viridis* (Brullé), new combination

(Fig. 4, 48, 50, 52, 55, 121, 153, cf. 187-205)

Joppa viridis Brulle, 1846. *In* Lepeletier: Histoire naturelle des insectes. Hyménoptères 4: 286. Type m: Argentina, Buenos Aires (Turin).

Cryptus kinbergi Holmgren, 1868. Kongigla svenska fregatten Eugenies resa . . 2(1): 397. Type f: Argentina, Buenos Aires (Stockholm).

Trachysphyrus nigricornis Porter, 1967. Mem. Amer. Ent. Inst. 10: 306-9.

FIELD NOTES. This conspicuous and often collected species ranges from the highlands of southern Perú and Bolivia to the Strait of Magellan. Its micro-habitat preferences are predominantly xerophile and its altitudinal span is from sealevel to 3000 m. There are only a few records for Chile and these pertain to the southern Provinces of Aisén and Magallanes at several localities where the Patagonian Steppe intrudes into Chile from Argentina.

9. Genus PICROCRYPTOIDES

Picrocryptoides Porter, 1965. Psyche 72: 167-74.
Type: Picrocryptoides willinki Porter. Original designation.

Fore wing 7.3-9.0 mm long. Coloration with head, mesosoma, and gaster dull metallic green; flagellum uniformly dark; legs orange variegated with brown to black; wings dark with metallic reflections. Body stout in female, rather slender in male. Flagellum in female definitely shorter than body, subtly enlarged and slightly flattened below toward apex, 1st segment 3.2-3.8 as long as deep at apex; in male robustly setaceous, with sharp and mostly percurrent linear and longitudinally oriented tyloids on segments 8(9)-17, first segment 2.4-2.6 as long as deep at apex. Front shallowly excavated with lower 0.5 polished and smooth; area around dorsal tentorial pit broadly but not deeply impressed. Face 1.4 as wide between eyes just below antennal sockets as high from top of anterior tentorial pits to bottom of antennal sockets. Mandible short and broad, tapering apicad, 2.6 as long as wide across base of teeth, teeth subequal. Stemmaticum raised well above rest of vertex. Clypeus: in profile much raised, strongly and asymmetrically blunt-pyramidal to nasute; its apical margin edentate, truncate to gently convex, rather sharp but only faintly reflexed on corners. Malar space in female 1.5-1.8 as long as basal width of mandible and in male 1.2-1.5 as long. Occipital carina rather high and flange-like above but narrowing below toward its junction with the narrowly raised hypostomal carina. Pronotum with humeral margin broadly but rather shallowly grooved on anterior 0.5 but more evanescently grooved rearward; epomia strong in scrobe and above produced into a well differentiated, large, bluntly triangular lamella; lower front margin gently rounded; dorsal anterior margin across collar with a rather high carina behind which there is an extensive swollen area bounded along its apex by a fine and sharp transverse groove. Mesoscutum with notauli reaching 0.6-0.8 its length, sometimes strong and sharply impressed throughout but sometimes reduced to a line of large punctures over much of their extent; smooth and polished with numerous but mostly well separated large and strong punctures. Mesopleuron with subalarum horizontal, stoutly subcrescentic, subcarinate along summit and continued rearward by a low but sharp carina; speculum swollen, smooth and shining with some large and deep punctures, set off below by a depression and pit but without a distinct subcurrent groove; prepectal carina sharp but extending less than 0.5 the distance dorsad on mesopleuron, inclivously curved but ending far from anterior margin of mesopleuron; lower prepectus with a tiny, sharp carina; disc almost uniformly, rather finely and granularly reticulo-punctate, ridges which separate the punctures tend to be sharp-crested on dorsal 0.5 but broader crested and more shining on lower 0.5 (surface more shining and punctures a little sparser in male); sternaulus straight and percurrent, deeply impressed on anterior 0.5, much more faintly defined toward apex. Hind coxa with a short but deep and polished groove descending from its articulation. Female fore tibia not inflated. Metanotum with its baso-lateral fossae sharp, small to large and occupying most of basal 0.7 of sclerite, on which they are separated broadly or by a strong median longitudinal carina; its surface weakly convex, polished, and almost glabrous; its hind rim forming a low ridge that curves around and down laterally to traverse summit of upper metapleuron. Groove between metanotum and propodeum narrow and shallow, with a pair of tiny submedian tubercles on hind rim of metanotum but only a vague pair of complementary excrescences on corresponding loci of anterior propodeum (end of obsolete median longitudinal carinae); no trace of a pair of excrescences corresponding to tangent of the equally vague lateral longitudinal carinae of propodeum. Wing venation: areolet very large and broad with intercubiti parallel, slightly convergent above, or a little differentially inclivous 2nd abscissa of radius 0.8-1.0 as long as 1st intercubitus; 2nd recurrent quite strongly reclivous on lower 0.5, straightened, curved, or angled above; discocubitus gently and evenly curved to slightly angled near middle, ramellus sometimes rather long but often completely absent; mediella practically straight; nervulus interstitial to a little antefurcal; axillus long and closer to submediella than to anal margin of hind wing. Propodeum with spiracle 2.2-2.5 as long as wide; in female elongate and gently curved in profile, without clear discontinuity between basal and apical faces, a little bulging and spheroid in aspect; often with a weak area basalis and with fine but detectable basal and apical trans-carinae, of which the apical carina may be broadened into low and elongate sublateral cristae but often also with all carinae weak or absent; in male even longer and lower in profile than in female and with most carinae at best weakly suggested. First gastric segment: in female with a stout subtriangular expansion baso-laterally on petiole and with postpetiole broadly expanded, 1.4 as wide apically as long from spiracle to apex; as well as with ventro-lateral carina sharp throughout; dorso-lateral carina well defined but sometimes becoming weaker basad on petiole; dorsal carinae variably developed, usually traceable but not sharp toward apex of petiole and on base of postpetiole; male with weaker expansion at base of petiole; with postpetiole 1.2 as wide apically as long from spiracle to apex; and longitudinal carinae averaging weaker than in female. Second gastric tergite: in female shining with large and strong, adjacent to subadjacent punctures that emit short setae that are generally about the length of their interspaces; in male mostly smooth and polished with mostly well separated tiny to moderately large punctures which emit long but not extensively overlapping setae. Gaster in female rather stout fusiform, in male more slender and approximately parallel-sided or weakly fusiform. Ovipositor: sheathed portion 0.30 as long as fore wing; straight, stout; scarcely compressed; without nodus or notch; profile of dorsal valve gently decurved on tip; ventral valve on tip with strong and approximately vertical ridges.

RELATIONSHIPS. *Picrocryptoides* contains dull metallic green trachysphyroids with dark wings, very large areolet, straight mediella, axillus closer to submediella than to anal margin of hind wing, well developed notauli, long propodeal spiracle, and strongly expanded female postpetiole. Most of these features are shared with several other South American members of the same complex, such as *Aglaodina*, *Trachysphyrus*, *Aeliopotes*, a few *Xiphonychidion*, and *Compsocryptus*. Some of the unusual or unique characters displayed by *Picrocryptoides* include location and shape of the tyloids; more or less nasute clypeus; inflated stemmaticum; very long malar space; dorsally and dorso-laterally raised but ventrally lower occipital carina; the lamellate dorsal projection of the epomia; coarsely punctate mesoscutum; often huge baso-lateral fossae on metanotum; other metathoracic details; reclivous 2nd recurrent vein; vague or absent carination and elongate contour of propodeum; strong subtriangular baso-lateral projection on female petiole; grossly punctate and densely setose female 2nd gastric tergite; and the short, stout ovipositor which lacks both the notch and the nodus of the dorsal valve tip and has mostly vertical ridges on the ventral valve tip.

GEOGRAPHIC DISTRIBUTION. This is a genus of semiarid subtropical South America, with one species from Concepción in central Chile and another that extends in Argentina from Catamarca and Córdoba Provinces south to San Luis, La Pampa, and Buenos Aires.

KEY TO THE SPECIES OF *PICROCRYPTOIDES*

(Female of *P. hesperios* unknown)

1. Temple strongly receding, 0.50-0.60 as long as eye in dorsal view; propodeum elongate but with apical face steep and clearly but not sharply differentiated from basal face, smooth and shining on basal 0.3-0.5 but otherwise with strong and dense punctures, toward apex of basal face and on apical face with long, bushy, much overlapping setae . . . . 1. *P. willinki* Porter, Argentina

1.' Temple rounded-off and scarcely receding, 0.76-0.78 as long as eye in dorsal view; propodeum low and rather flat in profile with apical face prolonging almost the same steep contour as basal face, surface mostly smooth and shining with some large punctures only laterally and on apical 0.3 or less, toward apex of basal face and on apical face with numerous but not much overlapping long setae . . . . 2. *P. hesperios* Porter, Chile

1. *Picrocryptoides willinki* Porter

(Fig. 180, 188, 198, 199)

Picrocryptoides willinki Porter, 1965. Psyche 72: 167-74. Type f: ARGENTINA, Córdoba, Davis (Cambridge).

Picrocryptoides willinki Porter, 1975. Stud. Ent. 10: 418.

NEW SPECIES EXAMINED. 1 m: ARGENTINA, Buenos Aires Province, La Plata, Facultad de Agronomía, 1968-69, Malaise Trap, C. Porter (Cambridge).

FIELD NOTES. This species seems restricted to the Pampa and southern Chaco Biotic Provinces in central Argentina. It flies from December to March and most often appears close to the ground in sunny places.

2. *Picrocryptoides hesperios* Porter

Picrocryptoides hesperios Porter, 1965. Psyche 72: 173-4. Type m: CHILE, Concepción (Cambridge).

FIELD NOTES. *Picrocryptoides hesperios* has not been collected since *P. Herbst* obtained the three type males at Concepción, Chile in November and December of 1908. Extensive habitat destruction around Concepción and replacement of the native trees with Scotch Pines or *Eucalyptus* might have eliminated this species. On the other hand, *Picrocryptoides* in Argentina occurs commonly in scrubby and disturbed biotopes, so that *P. hesperios* appears likely to have survived the agricultural and silvicultural chaos in central Chile.

10. Genus *AELIOPOTES*

Aeliopotes Porter, 1985. Psyche 92: 517-21. Type: *Amblyteles paitensis* Cockerell. Monobasic.

Fore wing 6.9-12.5 mm long. Coloration: head and mesosoma black; gaster red (occasionally with much black staining); legs red and black with a white band on male hind tarsus; flagellum black and in female with a white band; wings deeply infumate with metallic reflections. Body robustly elongate in female, more slender and cylindroid in male. Flagellum in female about 0.5 as long as body, filiform, slightly more robust on apical 0.5 but not flattened below toward apex, and with 1st segment 4.6-4.9 as long as deep at apex; in male a little longer than in female, setaceous with tyloids on segments 13(14)-18(19), of which the distalmost tyloid is rounded while the others are sharply linear and longitudinally oriented with the axes of their segments, segments 16-18 with a dorso-basal excavation above tyloid; 1st segment 3.0-3.7 as long as deep at apex. Front moderately excavated on lower 0.5 where it is shining with more or less strong and regular transverse wrinkles (weaker and less regular in male), but becoming gently convex on upper 0.5 where the surface is duller, more granularly puncto-reticulate and with more irregular larger wrinkles. Face 1.9 as wide between eyes as high from top of anterior tentorial pit to bottom of antennal sockets. Clypeus large and broad; in profile weakly or very weakly, about symmetrically convex; apical margin slightly convex and with corners well impressed but at most weakly reflexed (males). Malar space in female 0.80-1.0 as long as basal width of mandible, in male 0.80-0.90. Occipital carina sharp and narrow, joining the moderately elevated hypostomal carina below. Pronotum with humeral margin shallowly but percurrently and foveolately grooved; epomia strong in scrobe and developed above into a broad and sharply differentiated triangular or obtuse plate-like area; lower front pronotal margin rounded to broadly angled, without a tooth; upper front margin sublaterally with a sharp and low flange that becomes a very low carina dorsally across anterior end of collar; dorsomedian transverse area of collar weakly swollen, set off behind by coarse foveae (foveae weaker in male). Mesoscutum with notauli fine and narrow, reaching 0.7-0.8 its length; surface shining with uniformly dense moderately small, sharp, adjacent to subadjacent punctures. Mesopleuron with subalarum narrow, subcristate to subcarinate along summit and carinately prolonged behind, horizontally oriented; speculum swollen, mostly smooth and shining, at its anterio-ventral corner with a large, irregularly shaped, partly shining depression which is vaguely continued rearward to mesopleural suture by an impressed and coarsely foveolate area beneath speculum; prepectal carina strong, sharply inclivous, reaching about 0.5 the distance dorsad toward subalarum and at its terminus more or less contacting the anterior mesopleural margin; lower prepectus without an excrescence; disc opposite speculum above along front margin of mesopleuron with a shining callus that may be finely and densely punctate or which in some specimens is punctured and longitudinally striate throughout or only peripherally invaded by longitudinal wrinkles and whose surface on upper 0.5 beyond callus is radiately wrinkled while on lower 0.5 the mesopleural disc is uniformly and coarsely puncto-reticulate and wrinkled; sternaulus percurrent, broad, strong, foveolate, shallower and broader on apical 0.4 and narrower and deeper on basal 0.6. Female fore tibia stout but not inflated. Hind coxa with a sharp and strong, polished, vertical groove extending some distance below its attachment. Female 4th tarsomeres with a deep, V-shaped emargination on apex on fore and mid leg, practically truncate on hind leg. Metanotum gently convex in profile, moderately setose, its dorso-basal fossae large, deep, and triangular, separated on meson by about 0.5 the width of 1 fossa. Groove between metanotum and propodeum deep and very narrow in female, broader but also deep in male; submedian tubercles tiny but sharp on metanotal face of groove, large and convex (in male a little upturned and unusually large) on the propodeal face (both tubercles larger and easier to discern in male); sublateral tubercles obsolete on metanotal face and tiny but sharp on propodeal face (both obsolete in male). Wing venation: areolet large, intercubiti rather weakly to strongly and sometimes differentially convergent dorsad, 2nd abscissa of radius 0.6-0.8 as long as 1st intercubitus, areolet rather high, 1.0-1.1 as high as wide; 2nd recurrent a little reclivous, weakly and evenly curved or sometimes most strongly curved on upper 0.5, inserted near middle of areolet; discocubitus gently arched and without a ramellus; mediella straight beyond base; axillus far from anal margin of hind wing, as close to submediella as to anal margin. Propodeum with spiracle 2.0-2.5 as long as wide; its profile moderately short and high in female with apical face vertically declivous but in male lower and more elongate with the faces less sharply differentiated; basal trans-carina finely traceable throughout or often weak and irregular toward middle, straight laterally and swept forward submedially to its transverse median abscissa which remains moderately distant from propodeal base; apical trans-carina occasionally fine and sharp throughout but more often faint and irregular to almost absent, curved forward to its approximately transverse median abscissa but not closely approaching the basal trans-carina; cristae broadly low cuneate to short subligulate; area basalis tetragonal with sides converging rearward, wider than long in position; areola more or less regularly hexagonal, wider than long in position in female; in male a little longer than broad. First gastric segment with a strong and bluntly triangular lateral expansion at base of petiole (weak only in dwarf males);

postpetiole in female 1.4-1.7 as wide apically as long from spiracle to apex, in male 0.8-1.4 as wide; ventro-lateral carina strong on postpetiole, variably developed on petiole; dorso-lateral carina weak, most distinct toward apex of petiole and on base of postpetiole; dorsal carinae in female visible, but not sharp, toward apex of petiole and on about basal 0.5 of postpetiole, where they define a weak median area, dorsal carinae absent in male; sides of petiole in female with numerous, regularly spaced, strong vertical carinae between the ventro-lateral and the dorso-lateral carina, these carinae present also in large males but absent or obsolete in small males. Second gastric tergite in female smooth and shining to a little dull, with vague to fine but strong micro-reticulation and sparse, medium sized, shallow punctures that emit short and well separated setae; in male similar to female but with abundant although well spaced, rather small and superficial punctures that emit long, considerably overlapping setae. Ovipositor with sheathed portion 0.60-0.70 as long as fore wing; moderately stout, somewhat compressed; nodus low but distinct and without a notch; dorsal valve on tip with a gradual, slightly concave taper between nodus and apex; ventral valve on tip with fine, well spaced ridges, of which most are inclivously oblique, except that the basalmost ridge is reclivous and the next apicad nearly vertical; tip 0.13-0.18 as high at nodus as long from nodus to apex.

RELATIONSHIPS. This genus resembles Trachysphyrus in most characters except for its red and black coloration, dorsally lamelliform epomia, and baso-laterally toothed 1st gastric tergite. It also seems related to Compsocryptus but has unicolor instead of light and dark banded wings, long notauli, a sparsely punctate and setose female 2nd gastric tergite, and a straight ovipositor.

1. Aeliopotes paitensis (Cockerell)

(Fig. 46, 51, 53, 181)

Amblyteles paitensis Cockerell, 1927. Entomologist 60: 158. Type m: Perú, Paita (Washington).
Aeliopotes paitensis Porter, 1985. Psyche 92: 517-21.

Field Notes. This species is confined to the Coastal Desert biome between Piura and Arequipa, Perú at altitudes from sealevel to 2800 m. It may reach similar habitats in nearby north Chile.

11. Genus AGLAODINA, new genus

Type species: Ichneumon (Cryptus) cribricollis Spinola

Fore wing 9.8-13.4 mm long. Coloration metallic bluish green or shining black; flagellum mostly yellow to orange; hind orbit usually with a yellow line; wings deeply infumate with metallic reflections. Flagellum in female long and slender, filiform, scarcely flattened below toward apex with its 1st segment 5.4-6.4 as long as deep at apex, and with the short ventral setae uninterrupted on all segments but in male a little heavier than in female and bristleshaped, with sharp tyloidal ridges on segments 13-17, the basal tyloids following longitudinal axes of their segments but with the apical 3-4 ridges a little obliquely oriented, segments 15-18 with a conspicuous, polished basal area above each tyloid, and with 1st segment 2.8-3.3 as long as deep at apex. Front in female deeply excavated almost throughout, becoming smooth and polished below around antennal sockets, otherwise shining but with transverse wrinkling on most of upper 0.6 except with more irregular wrinkles toward stemmaticum; front in male similar but less deeply excavated and with a more extensive polished area below. Face 1.8 as wide as high. Mandible short and broad, 2.1-2.6 as long as wide across base of teeth, evenly tapering to mid-length and then almost parallel-sided to apex or evenly tapering throughout, its teeth subequal or with lower tooth a little shorter than the upper. Clypeus in profile moderately to strongly raised and bluntly subpyramidal or convex, its apical margin straight to a little convex, broadly and sharply defined throughout and narrowly but conspicuously reflexed on corners, its width 1.7 its height. Occipital carina uniformly sharp and low or sometimes becoming a little raised laterad and ventrad, joining the low to moderately raised hypostomal carina below. Malar space in female 0.7-1.2 as long as basal width of mandible, in male 0.7-1.0 as long. Pronotum with submarginal groove broad, grossly foveolate, often strong basally but weaker apicad; epomia strong in scrobe, above produced into a conspicuously ligulate or dentiformly triangular plate; lower front margin broadly angled and with a large and blunt to sharp tooth near mid-height; front margin sublaterally and across collar with a low but sharp, vertical carina; transverse swelling on collar gently swollen, well set off behind by a fine but sharp groove and a transverse row of foveae. Mesoscutum with notauli well defined to weak, usually detectable 0.3-0.6 its length; surface shining, grossly reticulo-punctate with huge, deep, subadjacent or a little sparser to confluent punctures. Mesopleuron: subalarum horizontal and bluntly cariniform or crescentic, its summit sharply carinate only apicad; speculum partly to uniformly punctate and wrinkled; prepectal carina nearly vertical, sharp to about dorsal 0.8 of mesopleuron but not reaching subalarum; surface strongly to grossly wrinkled or reticulo-punctate; sternaulus very weak but broad, barely traceable from prepectus rearward about 0.5 the distance to mid coxa. Female fore tibia not inflated or swollen. Hind coxa with strong groove extending vertically beneath its attachment. Wing venation: areolet large, broad or (often) high and narrow, intercubiti moderately to rather strongly convergent above, 2nd abscissa of radius 0.5-1.0 as long as 1st intercubitus, areolet 1.0-1.3 as high as broad; discocubitus very strongly bent a little basad of middle and often with a short ramellus, so that 1st recurrent is trenchantly differentiated from 1st abscissa of cubitus and the 2nd discoidal cell is skewed longitudinally; 2nd recurrent vertical or gently reclivous, straight or a little outbulged on upper 0.5, inserted distad of middle of areolet; mediella straight except near base; axillus far from anal margin of hind wing, as close to submediella as to anal margin; brachiella strong almost to edge of wing; setae of wing membrane usually sparse, short, and often hardly protruding beyond their sockets, the membrane crenulate (especially) apicad. Metanotum weakly convex, almost flat in profile; its baso-lateral fossae broad and deep, often separated on meson by more than the width of 1 fossa. Groove between metanotum and propodeum deep and moderately narrow in female, with the submedian tubercles tiny but acute on metanotal face and obsolete on propodeal face, and with the sublateral excrescences large and bluntly carinate on metanotal face but scarcely detectably on propodeum, in male with the groove similar to female's but broader and more open laterad with both sets of tubercles sometimes stronger than in female.

Propodeum with spiracle 1.2-2.3 as long as wide; area basalis horizontal, not strongly rising to meet median abscissa; entire propodeal contour in both sexes quite short and high with basal face a little longer than the vertically declivous apical face; basal trans-carina variably developed, conspicuous to obsolete, sometimes much elevated on the median abscissa which is thrust far forward to about basal 0.2 of propodeal dorsum; apical trans-carina far from basal, irregularly detectable (at least in part); cristae stout to narrow ligulate or even spike-shaped, strongly to very strongly projecting; areola often defined but also frequently obsolete, usually longer than wide. First gastric tergite: petiole without a baso-lateral expansion, slender but dorsally flattened; postpetiole in female 1.1-1.6 as wide at apex as long from spiracle to apex and in male 1.1-1.4 as wide; ventro-lateral and dorso-lateral carinae more or less well defined; dorsal carinae absent or obsolete. Second gastric tergite highly polished and shining with at most faint microreticulation, in females and most males with only scattered tiny punctures that emit short, sparse setae (some males with larger and denser punctures that give rise to longer but hardly overlapping setae). Gaster elongately fusiform, usually compressed toward apex (especially in female). Ovipositor with sheathed portion 0.30-0.40 as long as fore wing; straight, moderately slender, extremely compressed; nodus distinct, with a small and often superficial notch; tip 0.19-0.23 as high at notch as long from notch to apex; ventral valve on tip with fine and well spaced inclivously oblique ridges; tip profile long-sagittate.

GENERIC NAME. From the Greek adjective aglaus, "noble," "glorious," and the Greek noun dina, "whirl, eddy, ripple."

RELATIONSHIPS. Aglaodina belongs to the group of "trachysphyroid" genera that includes also Trachysphyrus, Aeliopotes (Porter 1985c), Picrocryptoides, some Xiphonychidion, Compsocryptus, Joppidium, and Sciocryptus. All of these have the axillus far removed from the anal margin of the hind wing. Forward displacement of the axillus has occurred independently along numerous lineages within the Tribe Mesostenini. For this reason, I prefer to delay conjectures as to the phyletic affinities of Aglaodina until the world mesostenines have been thoroughly studied.

Aglaodina differs phaenetically from its relatives or homoeoplasts by virtue of the following combination of unique or unusual features: Epomia produced dorsad into a broadly triangular tooth or lamella; mesoscutum grossly punctate; sternaulus very weak and broad, reaching scarcely 0.5 the length of mesopleuron; wing membrane oddly crenulate and with many unusually short setae that scarcely exceed their sockets; discocubitus strongly bent premedially, so that 1st recurrent and 1st abscissa of cubitus are nearly at right angles to each other; axillus as close to submediella as to anal margin of hind wing; petiole slender and without a baso-lateral tooth or flange; postpetiole without or with only faint dorsal carinae; 2nd gastric tergite highly polished with sparse tiny punctures that emit short and well separated setae (punctures and setae better developed in some males); ovipositor at most 0.40 as long as fore wing, sagittate on tip with a definite nodus bearing a superficial notch and with inclivously oblique ridges on the ventral valve, extremely compressed throughout.

GEOGRAPHIC DISTRIBUTION. *Aglaodina* occurs in the Andean and temperate regions of southwestern South America. In Chile, it has species from Tarapacá south to Aisén Province. In adjoining Argentina, there are records from the northwestern provinces of Jujuy, Salta, and Tucumán, from Mendoza at the base of the Andes near 33° South Latitude, and from Neuquén Province on the Chilean border at 40° South.

KEY TO THE SPECIES OF *AGLAODINA*

1. Head and body dull metallic bluish green; malar space 0.7-0.8 as long as basal width of mandible; 2nd recurrent vein usually outbulged on upper 0.5; areola without a median longitudinal ridge . . . . 1. *A. cribricollis* (Spinola)

1.' Head and body shining black; malar space 1.0-1.2 as long as basal width of mandible; 2nd recurrent not outbulged on upper 0.5; areola with a strong median longitudinal ridge on apical 0.3-0.4 2

2. Legs orange; malar space 1.2 as long as basal width of mandible; areolet broad, with 2nd abscissa of radius 1.0 as long as 1st intercubitus . . . . 2. *A. hyperbasa* (Porter)

2.' Legs black; malar space 1.0 as long as basal width of mandible; areolet rather high and narrow, 2nd abscissa of radius 0.7 as long as 1st intercubitus 3

3. Female with white apical bands on most gastric tergites; notauli traceable 0.5 the length of mesoscutum; gross punctures on mesoscutum mostly reticulo-confluent and their interspaces uniformly with small, sharp, dense punctures . . . . 3. *A. lasia* (Porter)

3.' Gaster without white markings; notauli traceable 0.7 length of mesoscutum; interspaces between gross mesoscutal punctures polished and impunctate, comparatively large . . . . . . 4. *A. daseia* (Porter)

1. *Aglaodina cribricollis* (Spinola), new combination

(Fig. 54, 56-60, 123, 201)

Ichmeumon (*Cryptus*) *cribricollis* Spinola, 1851. *In* Gay: Historia física y política de Chile. Zoología 6: 490. Type m: Chile, central provinces (lost).

Trachysphyrus cribricollis Porter, 1967. Mem. Amer. Ent. Inst. 10: 267-9.

NEW SPECIES EXAMINED. 1 f and 6 m: CHILE, Atacama Province, nr. Carrizal Bajo, 4-6-X-1984, C. Porter, T. O'Neill; Coquimbo Province, Valle de Elqui, nr. Rivadavia, 28-30-IX-1986, C. Porter, T. O'Neill; San Felipe Province, Jahuel, 16-19-X-1984, C. Porter, T. O'Neill.

FIELD NOTES. This conspicuous species ranges over most of Neantarctic Chile from 27 (Atacama Province) to 47 South Latitude (Aisén Province). It seems to prefer arid to semihumid habitats but has been collected in Nothofagus Forest (Valdivian Cordillera) at Pucará in Neuquén Province of Argentina on Lago Lacar near the Chilean border (Porter 1967: 268).

Aglaodina cribricolls flies swiftly and erratically in bright sun around arbustive vegetation and among understory herbs. The specimens collected in Atacama Province were swept from shrubs along an arroyo at a flower-covered site which had received copious late winter rain. Some prominent elements in this ephemeral flora were Hippeastrum phylloides, Argylia puberula, Calandrinia sp., Cordia decandra, and a varied panorama of Cactaceae. The consistent presence of this species in the southern Atacama Desert (more records in Porter 1967: 268) evokes speculation as to how it may survive the many rainless years during which the larger plants remain leafless and flowerless and the herbaceous flora survives as drought-resistent seeds or succulent underground bulbs.

2. Aglaodina hyperbasa (Porter), new combination

(Fig. 151)

Trachysphyrus hyperbasa Porter, 1967. Mem. Amer. Ent. Inst. 10: 269.
Type f: Chile, Antofagasta Province, Catarape (Cambridge).

3. Aglaodina lasia (Porter), new combination

Trachysphyrus lasius Porter, 1967. Mem. Amer. Ent. Inst. 10: 271-2.
Type m: Argentina, Catamarca Province, El Manchado at 4000 m (Tucumán).

NEW SPECIMENS EXAMINED. 1 f: CHILE, Tarapacá Province, Putre, 3400 m, no date or collector (Arica).

VARIATION. The north Chilean specimen agrees well with my description of the Argentine holotype, except for the usual sexual discrepancies (sheathed portion of ovipositor 0.30 as long as fore wing) and for the presence of white apical bands on most gastric tergites beyond the 2nd.

FIELD NOTES. This rarely collected species ranges through the high Andes of northern Chile, northwest Argentina, and (presumably) of intermediate Bolivia. It occurs between 2-4000 m. In addition to the holotype and the Chilean specimen reported above, I have seen Aglaodina lasia from several new Argentine localities, including Tafí del Valle at 2000 m in Tucumán Province, Cachipampa at 3000 m in Salta Province, and from Mina Aguilar at 4000 m in Jujuy Province.

Aglaodina lasia thus inhabits the Altiplano (High Andean Steppe), Puna (High Andean Desert), and Alder Woods Biomes. It rarely flies but spends much time crawling deep within low and tangled vegetation, from which it sometimes can be extracted with the sweeping net or by hand.

4. Aglaodina daseia (Porter), new combination

(Fig. 165)

Trachysphyrus dasys Porter, 1967. Mem. Amer. Ent. Inst. 10: 270-1.

Type f: Argentina, Mendoza (Ithaca).

12. Genus XYLACIS Porter, new genus

Type species: Trachysphyrus echthroides Porter

Fore wing 6.5-7.0 mm long. Coloration with head and mesosoma black with sparse white markings and gaster black with white apical bands on tergites 4 or 5-7, flagellum with a white band, legs orange and black with some white markings in male, wings moderately infumate in female, hyaline in male. Body elongate in female and slender in male. Flagellum in female long, slender, not depressed below toward apex, and with 1st segment 6.3 as long as deep apically; in male very slender setaceous with tyloids on segments 11 (apex)-17(18), tyloids sharp and linear in form and longitudinal to slightly oblique in orientation, tyloidiferous segments 13-15 dorso-basally excavated, 1st segment 2.9-3.6 as long as deep at apex. Front shallowly excavated, its surface dorsad mat with granular puncto-reticulation and toward ventral 0.5 more shining with transversely biased wrinkling. Face 1.6 as wide between eyes as high from top of anterior tentorial pits to bottom of antennal sockets. Mandible broad, strongly tapered toward apex; its ventral margin sharp and subcarinate; its width across base of teeth 2.4 its length; its lower tooth longer and more robust than the upper tooth. Clypeus rather small, in profile with basal 0.6-0.7 weakly to moderately convex and then with surface abruptly depressed through to apex; apical margin semiconvex but with a broadly triangular tooth medially and with the tooth prolonged dorsad from its mid-point as a vertical ridge that extends far upward along meson of the flattened clypeal surface, the apical margin becoming progressively more reflexed laterad of tooth and with its corners strongly reflexed. Malar space 0.80-0.90 as long as basal width of mandible. Occipital carina fine and sharp, joining the only weakly raised hypostomal carina below. Pronotum with humeral margin not swollen and humeral groove at most shallowly and obsolescently developed (best defined anteriad); epomia strong in scrobe but not much prolonged dorsad, with at most a faint swelling above its upper end; lower front margin weakly and bluntly subangulate; front margin dorsolaterally and medially across collar accentuated by a low but sharp carina, swollen anterio-median area of collar unusually elongate, not set off behind by a conspicuous groove. Mesoscutum with notauli in female narrow and superficial but reaching more than 0.5 the length of mesoscutum and in male even more tenuous but sometimes detectable for as much as 0.7 the length of mesoscutum; surface dully shining, finely but strongly reticulo-punctate with uniformly distributed, sharp, medium-sized, adjacent to confluent punctures (punctures averaging adjacent to confluent and surface more coarsely puncto-reticulate and more shining in male). Mesopleuron with subalarum horizontal, a little swollen, and ecarinate except for its apical prolongation; speculum swollen and shining but extensively invaded by strong punctures and wrinkles, its lower margin set off by an irregular pit that grades apicad into a short and fine groove; disc almost uniformly with fine reticulate wrinkling; lower prepectus without a ridge or carina; prepectal carina itself gently inclivous, far from anterior margin of mesopleuron, sharp or at least finely detectable 0.6 the distance dorsad to subalarum; sternaulus broad but weak, gently upcurved, traceable 0.6 the distance from prepectal carina to hind corner of mesopleuron. Hind coxa with a strong but short polished groove descending vertically from its attachment. Female front tibia conspicuously inflated. Metanotum gently convex in profile, almost glabrous, its lateral fossae large and deep but distant from one another across meson. Groove between metnotum and propodeum sharp, deep, moderately narrow; both propodeal and metanotal surfaces with a small tooth or tubercle submedially and aligned with the (obsolescent) median longitudinal propodeal carinae; the sublateral excrescences (corresponding to the lateral longitudinal carinae) obscure but represented by a little swelling on metapleural face; hind rim of metanotum sharp medially and prolonged laterally (somewhat weaker and more irregular) across summit of the dorsal metapleuron. Wing venation: areolet large and rather broad, intercubiti strongly convergent above, 2nd abscissa of radius 0.5-0.8 as long as 1st intercubitus; 2nd recurrent a little reclivous, gently to strongly outbulged on upper 0.5; discocubitus long, gently arched or broadly angled, without ramellus; mediella practically straight beyond base in female to gently arched in male; axillus short, weakly pigmented, and very close to anal margin of hind wing. Propodeum with spiracle 1.2-1.7 as long as wide; moderately short and high in profile, faces subequal, the basal arched and moderately sloping behind, the apical discrete and steeply declivous (a little lower and longer in male); basal trans-carina traceable throughout (delicate in female, often strong and high in male), very gently to moderately strongly thrust forward medially and throughout its length comparatively close to base of propodeum; apical trans-carina absent in female and some males, in other males irregularly detectable throughout but always very distant from the basal carina even though arched forward medially; area basalis more or less defined, small, strongly tapering to apex; areola at best faintly defined, broader than long in female but much longer than broad in male; cristae low and rather small but definitely projecting cuneate. First gastric tergite: without a baso-lateral expansion on petiole; postpetiole in female moderately expanded, 1.3 as wide apically as long from spiracle to apex, in male parallel-sided and 0.70-0.80 as wide at apex as long; ventro-lateral carina well developed throughout; dorso-lateral carina sharp on postpetiole and on apex of petiole but fading out basad on petiole; dorsal carinae in female distinct but not sharp from apex of petiole almost to apex of postpetiole and defining a low median elevation, but in male only vaguely suggested. Second gastric tergite: dully shining with almost uniformly distributed, shallow but sharply defined, medium sized, adjacent to confluent punctures emitting abundant short setae which about equal the length of their interspaces (male second tergite a little duller, with slightly longer setae, and with punctures less distinct among intercalated micro-reticulation than described for female). Gaster fusiform in female, more slender and almost parallel-sided in male. Ovipositor: sheathed portion 0.50 as long as fore wing; relatively slender, strongly compressed; nodus rudimentary, with a vague notch; dorsal valve with a very gradually decurved taper between notch and apex; ventral valve with fine, well-spaced, weakly oblique to vertical ridges; tip 0.24 as high at notch as long from notch to apex.

GENERIC NAME. From the Greek noun xylon, "wood," and the Greek noun acis, "pointed object." The combination is regarded as feminine.

SPECIES INCLUDED. Xylacis includes only Trachysphyrus echthroides Porter (1967a: 87-8).

RELATIONSHIPS. This genus differs from all other South American trachysphyroids in the shape and dentation of its clypeus. Other notable features are the ventrally ridged mandible with the lower tooth larger and stouter than the upper, the weak sternaulus, the inflated female front tibia, the densely but discretely punctate 2nd gastric tergite, and the ovipositor with its obsolescent notch and nodus and nearly vertical ridges on the tip of the ventral valve.

Many of these features ally Xylacis with the Holarctic Xylophrurus, and the two genera agree in so many aspects that their resemblance possibly may reflect relationship rather than convergent evolution, although the clypeal, mandibular, tibial, and terebral specializations shared are of a type that has evolved independently among diverse ichneumonid lineages whose hosts are larvae that bore in twigs or stems.

Xylophrurus differs from the South American genus in lacking a strong groove descending from the hind coxal articulation, in its stronger propodeal trans-carinae, and by having the ventral ovipositor valve arched upward apically so as to cover a large part of the dorsal valve between the nodus and terebral apex.

GEOGRAPHIC DISTRIBUTION. Xylacis has been collected sporadically at diverse localities in the high Andes of Bolivia and Argentina as well as in the Northern Valdivian Forest of south-central Chile.

1. Xylacis echthroides Porter

(Fig. 124, 179)

Trachysphyrus echthroides Porter, 1967. Mem. Amer. Ent. Inst. 10: 87-8.
Type f: ARGENTINA, Catamarca Province, El Suncho (Tucumán).

Chromocryptus echthroides Townes, 1969. Mem. Amer. Ent. Inst. 12: 180.

NEW SPECIMENS EXAMINED. 2 m: ARGENTINA, Salta Province, Tacuil, 2700 m, 23-27-I-1968, R. Golbach, A. Terán, A. Willink (Tucumán); BOLIVIA, near La Paz, Micapaca, 5-III-1968, C. Porter, A. García (Porter).

FIELD NOTES. Both specimens were found in semiarid Subandean Desert habitats, with lush herbaceous growth and an overstory of Prosopis, Acacia, Schinus, and Salix in wetter spots. The Bolivian male was swept from natural undergrowth in an Apple Orchard.

13. Genus NOTHISCHNUS

Nothischnus Porter, 1967b. Stud. Ent. 10: 396. Type: Nothischnus riverai Porter. Monobasic.

Fore wing 5.3-7.0 mm long. Coloration black wtih a white flagellar annulus and with abundant white markings on head, mesosoma, gaster, and legs; wings hyaline. Flagellum in female long and slender, subtly swollen on preapical 0.4 and then weakly tapered apicad, not flattened below, faintly setaceous, 1st segment 5.3-5.9 as long as deep at apex; male flagellum much stouter than in female, strongly setaceous, with tyloids mostly situated obliquely to the longitudinal axis of their segments, 1st segment 3.5-3.8 as long as deep at apex. Front broadly and shallowly excavated, shining, most prominently polished on the gently concave ventral 0.5 which also shows fine and trans-biased wrinkling, on upper 0.5 a little more mat with fine micro-reticulation and some irregular and stronger wrinkles. Face 2.2 as wide between eyes just below level of antennal sockets as high from top of anterior tentorial pit to bottom of antennal socket. Mandible broad and strongly tapered apicad, 2.5-2.7 as long as wide across base of teeth; teeth subequal or with the upper a little longer than the lower. Clypeus in profile low, gently and almost symmetrically convex to weakly subpyramidal; its apical margin slightly convex, obscurely bituberculate preapically on meson, its corners not reflexed, its width 2.2 its greatest height. Occipital carina fine and narrow throughout, joining the moderately raised hypostomal carina below. Malar space 0.60-0.70 as long as basal width of mandible. Pronotum with dorsal margin a little swollen, its submarginal groove represented only by some weak wrinkles along inner margin of humeral swelling; epomia not or not sharply differentiated among the many fine vertical wrinkles in scrobe; lower front margin broadly angled and often with a broad and blunt tooth or excrescence; upper margin sublaterally and across collar elevated into a sharp and translucent but low flange; dorso-median transverse area of collar well swollen and demarked rearward by a row of foveae. Mesoscutum with notauli both fine and sharp basally, where they set off a rather high central lobe, and becoming shallower but traceable behind where they reach the apical 0.6-0.7 of the mesoscutum; surface more or less mat and dully to in part strongly shining, with minutely granular micro-reticulation, and with abundant, well defined, medium sized, largely adjacent to subadjacent punctures as well as with some irregular wrinkling toward and behind terminus of notauli. Mesopleuron: subalarum horizontal, strongly swollen and obtusely ellipsoid, carinate only apicad; prepectal carina gently inclivous, traceable dorsad to subalarum but becoming finer and weaker above; speculum largely polished and shining; surface otherwise finely granular to delicately reticulate; with sternaulus nearly straight and percurrent but faint on apical 0.4; venter not abruptly flattened, so that pterothacic cross section is more ovoid than quadrate; lower prepectus without an excresence. Fore tibia of female not inflated. Hind coxa strongly grooved at base. Wing venation: areolet high, 1.1 as high as wide, moderately large, intercubiti very much converging above, 2nd abscissa of radius 0.3-0.6 (in some males) as long as 1st intercubitus; discocubitus almost evenly and very gently arched and ramellus absent or short, so that there is often little discontinuity between the 1st recurrent and 1st abscissa of the cubitus and the 2nd discoidal cell may be almost parallel-sided longitudinally; 2nd recurrent moderately inclivous, sometimes gently curved on upper 0.5; mediella arched throughout; brachiella almost reaching wing margin; axillus very close to anal margin of hind wing. Metanotum prominently convex in profile, its latero-basal fossa deep and prominent, separated on meson by a little more than the width of 1 fossa. Groove between metanotum and propodeum strong and deep but broad (especially laterad) even in female; the submedial excresences obsolete, low and callous-like, on both metanotal and propodeal faces (definitely visible), sublateral excrescences not differentiated.

Propodeum with spiracle round; basal trans-carina strong, especially medially and sublaterally, gently curved forward mesad and reaching basal 0.15 of propodeal dorsum; apical trans-carina obsolete or weak on its median 0.6 but more distinct laterad, very far from basal trans-carina; cristae broad and low, obtusely subcuneate or crescentic, externally often prolonged ventrad as an irregular ridge; areola in position square or a little wider than long, with its lateral carinae weak to absent; area basalis very broad, in lateral view sharply declivous to propodeal base; profile of entire propodeum in female short and high with basal face somewhat steeply sloping behind but with the apical face nearly vertical and subequal to basal; male propodeum longer and lower in profile than described for female with apical face discrete but not as steeply declivous nor as long as in female; areolation as in female or sometimes sharper, areola often longer than wide. First gastric tergite: petiole without a baso-lateral expansion; post-petiole moderately (female) to scarcely (male) expanded, 0.90-1.1 as wide apically as long from spiracle to apex in female and 0.6 in male; ventro-lateral carina percurrent (sharpest in female); dorsal carinae in female vaguely delimiting a weak median elevation toward apex of petiole and on postpetiole, in male not or weakly present. Second gastric tergite mat, finely and granularly micro-reticulate with abundant, adjacent to subadjacent, weak to obsolete, moderately large superficial punctures emitting quite long setae that generally equal or a little exceed the length of their interspaces (setae longest and densest in male). Gaster elongate fusiform and apically deplanate in female, more slender and nearly cylindric in male. Ovipositor with sheathed portion 0.20-0.30 as long as fore wing; straight, compressed; nodus rather high and with a tiny, sharp notch; dorsal valve taper rather steep, slightly concave toward the comparatively attenuate apex on which the dorsal valve becomes depressed when viewed from above; ventral valve on tip with fine, well spaced, reclivously oblique ridges; tip 0.24-0.32 as high at notch as long from notch to apex. Vestiture: without areas of long, outstanding, tangled, shaggy setae.

RELATIONSHIPS. Nothischnus represents another unique, monotypic lineage of Araucanian South America. Its closest relatives may be Caenopelte and Sciocryptus, as discussed under those genera.

Townes (1969: 179) synonymizes Nothischnus with Chromocryptus. Townes' definition of Chromocryptus embraces all those species of the old genus Trachysphyrus (Porter 1967a) that have the axillus vein close to the anal margin of the hind wing. Townes' synonymy is unwarranted because Nothischnus differs from all other New World trachysphyroids by the following combination of characters: most tyloids oblique to longitudinal axis of flagellum; epomia obsolete or undifferentiated even in scrobe; intercubiti very strongly convergent above; mediella arched throughout; propodeum with spiracle round and area basalis rising steeply from base to a peak at the reinforced median segment of the basal trans-carina; postpetiole slender, at most 1.1 as wide apically as long from spiracle to apex; gaster apically deplanate; ovipositor no more than 0.30 as long as fore wing, compressed, apically attenuate, and with well spaced reclivously oblique ridges on tip of ventral valve. Most Chromocryptus (sensu Townes) have the epomia strong at least in scrobe; the intercubiti less strongly convergent above than in Nothischnus; the mediella weakly arched to straight; the propodeal spiracle ovoid to elongate; the area basalis gently arched or nearly horizontal in profile; the female postpetiole strongly expanded; the gaster more nearly cylindric; and the ridges on the ventral ovipositor valve inclivously oblique to vertical.

1. Nothischnus riverai Porter

(Figs. 125)

Nothischnus riverai Porter, 1967. Stud. Ent. 10: 396-400. Type f: Chile, Arauco Province, Pichinahuel, Cord. Nahuelbuta, 1100-1400 m (Ottawa).

Chromocryptus riverai Townes, 1969. Mem. Amer. Ent. Inst. 12: 180.

NEW SPECIMENS EXAMINED. 1 f: CHILE, Cautín Province, Comuna de Pucón, Termas de Palguín, 27-XI-1984, C. Porter, T. O'Neill.

FIELD NOTES. The specimen here recorded was obtained along a degraded logging road paralleling a stream in lush Nothofagus forest, with Araucaria a few hundred meters above on the slopes of Volcán Villarrica.

Otherwise (Porter 1967b: 398), Nothischnus riverai has been collected at localities both in Ñuble and Arauco Provinces, where Araucaria araucana also covers the heights and is ecotonally replaced by Nothofagus in the 1500 to 1000 m belt below. Much of this area receives 1500 to 5000 mm yearly rainfall. Nothischnus may thus be limited ecologically to those few parts of south-central Chile (and adjoining Argentina) in which Araucaria araucana survives undisturbed and where a cold temperate rainforest climate prevails (i.e., to the Pehuenar zone of Pena 1966: 12-3).

14. Genus CAENOPELTE

Caenopelte Porter, 1967. Stud. Ent. 10: 400-3. Type: Caenopelte palinorsa Porter. Monobasic.

Fore wing 4.2-8.8 mm long. Coloration black with white on flagellum and sparsely on head, mesosoma, gaster, and legs; wings weakly to moderately infumate. Flagellum in female long and slender, as long as body, practically filiform with only a faint taper apicad, not flattened below, 1st segment 6.3-7.7 as long as deep apically, but in male moderately stout, strongly setaceous, and with tyloids on segments 13-15 which are elongately elliptic in shape and are aligned with the longitudinal axes of their segments, 1st segment 4.2 as long as deep at apex. Front broadly and shallowly excavated, smooth and polished on lower 0.5, where it is also most concave, and rising on upper 0.5 to silky-shining integument with fine micro-reticulation or micro-aciculation as well as with some faint and irregular wrinkling. Face 1.7 as wide between eyes just below level of antennal societs as high from top of anterior tentorial pit to bottom of antennal socket. Mandible broad and strongly tapered apicad, 2.4-2.8 as long as wide across base of teeth; teeth subequal or upper a little longer than lower. Clypeus low and symmetrically subconvex in profile; its basal face a little convex, its apical face more steeply declivous than the basal and flattened to slightly concave, its apical margin broad and a little concave to almost straight, its width 2.4 its greatest height. Occipital carina fine and sharp, joining the only weakly higher hypostomal carina below. Malar space 0.80-0.90 as long as basal width of mandible in female, 0.70 as long in male. Pronotum with submarginal groove broadly and a little shallowly defined, especially anteriad (weak in small males); epomia weak (sometimes poorly differentiated) to strong in scrobe; with lower front margin bluntly but definitely angled or sharply curved, without a tooth; upper margin sublaterally and across front of collar developed into a stronger, subtranslucent, horizontally projecting low flange-like carina; median transverse swelling of collar gently swollen, anteriorly a little thrust forward, set off behind by a row of strong foveae or short longitudinal wrinkles. Mesoscutum: notauli well impressed, strongest toward the base, traceable 0.6-0.7 the length of mesoscutum; surface silky, shining, with only faint micro-reticulation and with almost uniformly distributed, moderately small, sharp, adjacent to subadjacent punctures which become reticulately confluent between notauli apicad (sometimes more brightly shining and with even sharper and larger punctures in male). Mesopleuron: subalarum horizontal, broadly and stoutly but bluntly crescentic, becoming carinate only at apex; prepectal carina gently inclivous, remaining strong, even above 0.6 of mesopleuron and irregularly traceable to subalarum; speculum mostly smooth and shining; disc otherwise with fine, longitudinal wrinkles and variable intercalated punctures on upper 0.5, more strongly and irregularly wrinkled below; sternaulus percurrent but faint on apical 0.4, weakly sinuate or a little upcurved rearward (almost straight in some males): pterothoracic cross section subquadrate. Hind coxa not grooved at base below attachment. Fore tibia of female not inflated. Wing venation: areolet large and broad with intercubiti moderately convergent above, 2nd abscissa of radius 0.7-0.8 as long as 1st intercubitus in female and as short as 0.6 in male, areolet 0.9 as high as wide; discocubitus broadly angled and usually with a prominent ramellus; 2nd recurrent moderately inclivous, almost straight; mediella moderately arched; axillus close to anal margin of hind wing. Metanotum weakly convex in profile, its latero-basal fossae deep, rounded, large, separated on meson by a little more than the width of 1 fossa. Groove between metanotum and propodeum deep but rather broad and open laterally, even in female; its submedian excrescenses in female rather acutely tuberculate on metanotal face, more rounded, tubercular, and lower on propodeal face and the sublateral excrescenses weakly cariniform on metanotal face but absent on propodeal face; submedial excrescenses even stronger in male, those on propodeal face very large and somewhat upswept (male sublateral excrescenses as in female). Propodeum with spiracle 1.1-1.4 as long as wide; in female with profile very short and high with dorsal face peaked at area basalis, which is very broad in position, and steeply sloping both basad and apicad as well as with the apical face vertically declivous and longer than the basal face; basal trans-carina sharp throughout or sometimes weakened laterally, its lateral abscissae broadly thrust forward to the long and straight median abscissa, which remains near basal 0.2 of dorsal face of propodeum; apical transcarina thrust forward medially very close to basal trans-carina, percurrent, sometimes irregular laterad; cristae broad, strongly low crescentic and prolonged exteriorly below as an irregular ridge; median longitudinal carinae detectable and bordering a broad (2.0 as wide as long), hexagonal areola but in male with profile longer and lower with faces subequal and with the apical face sharply discrete, cristae broad, strongly low crescentic and prolonged exteriorly below as an irregular ridge; median longitudinal carinae more or less distinct and bordering a broad (2.0 as wide as long), hexagonal areola; in male with profile longer and lower with faces subequal, the apical face sharply discrete but more oblique than in female, both trans-carinae strong and sharp throughout, areola only a little wider than long and with its bordering median longitudinal carinae irregular but strong. First gastric tergite: petiole without a baso-lateral expansion, broad and flattened above; postpetiole moderately expanded in female (1.1-1.3 as wide apically as long from spiracle to apex) and slender in male (0.8 as wide apically as long); ventro-lateral carina strong and sharp throughout; dorso-lateral carinae more or less detectable throughout and becoming sharp basad on petiole; dorsal carina traceable throughout on petiole and onto basal 0.6 of postpetiole, enclosing a well defined median elevation toward apex of petiole and on base of postpetiole (longitudinal carinae and median elevation comparatively weaker but traceable in male). Second gastric tergite in female with numerous, moderately large but obscure punctures whose setae mostly approach or exceed the length of their interspaces and with surface shining and finely micro-reticulate but in male with setae longer and uniformly overlapping, punctures a little larger, and surface more dully and coarsely micro-reticulate than in female. Gaster in female stout fusiform and robustly cylindric but in male elongately cylindric and parallel-sided. Ovipositor with sheathed portion 0.30 as long as fore wing; straight, stout, compressed; nodus high, with a small and sharp notch; dorsal valve with a rather short and feebly convex profile from notch to apex; ventral valve on tip with fine, sharp, unusually crowded and reclivously oblique ridges; tip 0.32-0.41 as high at notch as long from notch to apex.

RELATIONSHIPS. This monotypic Araucanian genus easily may be recognized by such unique or unusual features as its peculiarly shaped clypeus, dense brush of setae on apex of ventral hind pretarsal plate, unusually short and high female propodeum with the trans-carinae very close to each other medially, and by the dense and reclivously oblique ridges on the ventral valve of its ovipositor tip.

Caenopelte shares some features with Sciocryptus and Nothischnus in which the mediella also is arched, the axillus close to the anal margin of the hind wing, the propodeum short and high with a nearly round spiracle, and the ovipositor tip has reclivous, albeit widely spaced, ridges on the ventral valve. Notwithstanding, Caenopelte may be nearest related to Anacis, since both have the petiole flattened and lack a sharply defined groove extending ventrad from the hind coxal attachment.

1. Caenopelte palinorsa Porter

(Figs. 68-71, 126, 193, 207)

Caenopelte palinorsa Porter, 1967. Stud. Ent. 10:402-3. Type f: Chile, Chiloé Province, Dalcahue (Townes).

NEW SPECIMENS EXAMINED. 1 f and 8 m: CHILE, Cautín Province, Termas de Palguín, 27-XI-1984, 8-9-XII, 1984, C. Porter, T. O'Neill; Osorno Province, Parque Nacional Puyehue, entre Termas de Puyehue y Antillanca, 14-II-1986, C. Porter, T. O'Neill (Porter).

FIELD NOTES. *Caenopelte* inhabits temperate southern Chile between 39° and 43° South Latitude. It has been recorded at elevations from 600 to 1400 m and thus doubtless occurs in the Valdivian Forest, Valdivian Cordillera, and Pehuenar regions (as defined by Peña 1966: 12-5).

My specimens were swept from small trees or understory shrubs along abandoned logging roads or in disturbed forest. Conspicuous elements in the flora at these localities were *Nothofagus dombeyi*, *N. procera*, *Embothrium coccineum*, *Gevuina avellana*, *Eucryphia cordifolia*, *Berberis* spp., *Escallonia rosea*, *Desfontainea spinosa*, *Fuchsia magellanica*, *Chusquea* spp., *Mutisia spinosa*, and *Philesia magellanica*.

15. Genus *DOCHMIDIUM*

Dochmidium Porter, 1967. Stud. Ent. 10: 389-95. Type: *Dochmidium camponotus* Porter. Original designation.

Fore wing 3.5-4.8 mm long. Coloration: head and mesosoma opaque black in both sexes; gaster shining black in female and more opaque in male; females sometimes with sparse pale tan marks on head and mesosoma as well as with similarly colored apical bands often developed on gastric tergites 3 and following (gaster varying to uniformly black); males with moderately conspicuous and profuse white markings on head, mesosoma, and gastric tergites; legs black with obscure white markings in male; flagellum black, in female with a white band; wings in female moderately infumate with apices contrastingly pale, in male slightly and uniformly infumate. Body short and stout fusiform in female, slender and cylindric in male. Flagellum in female long, moderately slender, filiform, scarcely flattened below toward apex but slightly stouter on apical 0.5 than toward base, 1st segment 5.2-5.6 as long as deep at apex; in male setaceous and rather stout, with sharp, linear, longitudinally oriented tyloids on segments 11 (near apex) and 12-14 (percurrent); 1st segment 3.3-4.0 as long as deep. Front on lower 0.3-0.4 slightly concave, a little convex on upper 0.6-0.7, matly and minutely reticulo-punctate throughout. Face 1.7 as wide between eyes as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus rather small; in profile comparatively low to quite high and usually a little asymmetrically to symmetrically convex or bluntly pyramidal; apical margin truncate to weakly convex; corners scarcely reflexed. Malar space in female 0.90-1.0 as long as basal width of mandible, in male 0.80-0.90 as long. Mandible broad at base and strongly, evenly tapered toward apex, about 2.9 as wide across base of teeth as long, its teeth subequal. Occipital carina fine and sharp, joining the only slightly higher hypostomal carina far below. Pronotum with humeral margin scarcely swollen but with a weak and shallow longitudinal groove that is broad anteriorly but which narrows and fades out apicad; epomia sharp at least in trough of scrobe, weakly traceable dorsad and mesad where it makes a slight discontinuity on dorsal margin of pronotum; upper front margin sublaterally and across collar with a strong but low carina; dorso-median transverse area of collar swollen and sharply delimited across its apex. Mesoscutum with notauli narrow and delicate, traceable about 0.5 its length in female but in male a little stronger and reaching up to 0.7 its length; surface in female opaque and minutely but coarsely granular, in male more finely granular with small, mostly subadjacent, more or less weak and superficial punctures. Mesopleuron with subalarum swollen, not conspicuously crested except rearward near the apical carina, horizontal; speculum not swollen and only feebly differentiated, opaque and finely granular as is rest of surface, at its anterio-ventral angle with a sharp pit that is connected by a delicate, gently descending groove to the mesopleural suture; prepectal carina fine, inclivous but not reaching anterior margin of mesopleuron, recurved or slightly sinuate on upper 0.5 where it approaches subalarum; no excrescence on lower prepectus; disc opaque and with fine but granular micro-sculpture as well as with unusually long, extensively overlapping, and somewhat shaggy silvery setae, which are denser and more conspicuous than setae of the rest of the mesosoma; sternaulus weakly impressed and upcurved on its basal 0.6, absent on apical 0.4. Hind coxa without a strong and polished groove arising at its attachment. Female fore tibia stout and moderately swollen. Metanotum almost flat in profile; dorso-basal fossae well developed but distant on meson and separated basally by about 2X the width of 1 fossa. Groove between metanotum and propodeum much as in Anacis with the submedian tubercles well developed on both faces (strongest on metanotal apex) and with lateral tubercles detectable on metanotum (all tubercles strongest in male). Wing venation: areolet large and broad, 2nd abscissa of radius 0.6-1.0 as long as 1st intercubitus, width of areolet 0.7 to (more frequently) 1.1-1.2 its height; radial cell unusually short, 2.2-2.6 as long as wide in female, 2.8-3.0 as long in male; 2nd recurrent strongly inclivous (cf. Tribe Gelini) and approximately straight; discocubitus evenly arched throughout; axillus very close to anal margin of hind wing; brachiella often very short. Propodeum: spiracle round; female profile short and high to distinctly elongate with basal and apical faces subequal, the apical discrete and steeply declivous; basal trans-carina fine and sharp throughout to delicate and irregular, often somewhat broken up medially and sublaterally, strongly curved or arched forward on median abscissa but even there well removed from propodeal base (most proximal point at about anterior 0.3 of basal face); apical trans-carina strong and sharp throughout, also curved forward on its median segment but distant at all points from the basal carina; cristae low but prominent, broadly crescentic to subcuneate; area basalis not well defined because median longitudinal carinae are absent or vague, longer than wide and much narrowed apicad in position; areola vaguely defined, sometimes wider than long but usually up to 1.6 as long as wide, subhexagonal and weakly raised; male propodeum longer and lower than in female with the faces often smoothly merging and the cristae very low subcrescentic. First gastric segment without a baso-lateral expansion on petiole; female petiole stout, broad and flat above, and the postpetiole 1.0-1.6 as wide apically as long from spiracle to apex; male also with petiolar dorsum flattened but with postpetiole only 0.6-0.7 as wide as long; ventro-lateral carina strong throughout in female, but often weak on petiole in male; dorso-lateral carinae more or less completely traceable, often fine and sharp, in both sexes; dorsal carinae more or less well defined (not sharp) on petiole and about basal 0.7 of postpetiole in female, more vaguely traceable in male. Second gastric tergite in female quite shining with granular micro-reticulation and scattered obscure punctures which emit short and mostly well separated setae that become longer and denser laterad but are never extensively overlapping; in male a little more dully shining and more coarsely micro-reticulate than in female and with abundant but very faint punctures that emit long and mostly well overlapping setae. Gaster short and stout fusiform in female, long and slender in male. Ovipositor: sheathed portion

0.30-0.40 as long as fore wing; straight, moderately stout, compressed; nodus well developed and with a tiny but sharp notch; dorsal valve on tip with profile strongly tapering and straight or slightly convex; ventral valve on tip with fine and inclivously oblique ridges.

RELATIONSHIPS. Dochmidium seems closely related to Anacis because of its relatively few tyloids (developed in part on 11th and throughout on 12-14th flagellomeres), weak humeral groove on pronotum, apically faint sternaulus, ungrooved hind coxal base, arched mediella, broad areolet, round propodeal spiracle, well separated basal and apical trans-carinae of propodeum with basal carina medially at no more than anterior 0.3 of dorsal propodeal face, and well developed submedian excrescences in groove between metanotum and propodeum.

The inclivous 2nd recurrent vein furnishes the best diagnostic feature for this genus. Other useful characters are the exceptionally short and broad radial cell, the dense and silvery long setae of the mesopleuron, and the moderately darkened female wings which become contrastingly paler apicad.

GEOGRAPHIC DISTRIBUTION. This genus is confined to Neantarctic South America between about 35° and 42° South Latitude. It occurs principally in the Nothofagus region of Chile but reaches similar habitats along the Chilean border in Argentina south of 40° Latitude.

KEY TO THE SPECIES OF DOCHMIDIUM

(Male of D. syntomum unknown)

1. Areola wider than long in position; postpetiole 1.6 as wide apically as long from spiracle to apex; gaster without pale markings . . . . .2. D. syntomum Porter

1.' Areola longer than wide in position; postpetiole in female 1.0-1.4 as wide apically as long from spiracle to apex; gaster sometimes with tan on 3rd and succeeding segments . . . . 1. D. camponotus Porter

1. Dochmidium camponotus Porter

(Fig. 61-66, 185)

Dochmidium camponotus Porter, 1967b. Stud. Ent. 10: 392-5. Type f: Chile, Talca Province, Altos de Vilches (Cambridge).

NEW SPECIMENS EXAMINED. 6 m: ARGENTINA, Neuquén Province, Pucará ca. Chilean border on Lago Lacar west of San Martín de los Andes, I-1970, S. Schajovskoy; CHILE, Osorno Province, Parque Nacional Puyehue, entre Termas de Puyehue y Antillanca, 14-II-1986, C. Porter, T. O'Neill; Cautín, Pucón (Peninsula en Lago Villarrica), 30-XI-1984, C. Porter, T. O'Neill (Porter).

FIELD NOTES. Females of D. camponotus most often are swept from branches of trees or large shrubs in forests dominated by Nothofagus.

Males occur in similar habitats but usually are swept from grassy undergrowth in clearings or at the forest edge.

This is a species of Northern Valdivian Forest, the Pehuenar, and of Valdivian Forest (Peña 1966).

2. Dochmidium syntomum Porter

Dochmidium syntomum Porter, 1967b. Stud. Ent. 10:395. Type f: Chile, Malleco Province, T. Río Blanco (Cambridge).

This species has not been collected in recent years. The unique holotype was obtained in Northern Valdivian Forest.

16. Genus ANACIS

Anacis Porter, 1967. Stud. Ent. 10: 376-80. Type: Anacis festiva Porter. Monobasic.

Baeocryptus Porter, 1967. Stud. Ent. 10:380-88. Type: Ichneumon (Cryptus) rubripes Spinola. Original designation.

Fore wing 3.5-6.0 mm long. Coloration variable: head and body black or sometimes largely brown, with sparse to sometimes profuse pale markings; flagellum with or without a white band; wings hyaline to blackish with metallic reflections. Body moderately robust fusiform in female, slender and cylindrically fusiform in male. Flagellum in female long (often about as long as body), delicately filiform, sometimes weakly enlarged on apical 0.5, not flattened below toward apex, and with 1st segment 5.9-10.0 as long as deep at apex; in male weakly setaceous and a little shorter and stouter than in female, with tyloids on segments 13 (a short ridge near apex), 14 (a nearly percurrent ridge), and 15 (a short ridge at base), all tyloids sharply linear and aligned with longitudinal axes of their segments; 1st segment 4.1-5.4 as long as deep. Front on lower 0.4-0.5 weakly concave, shining, smooth or a little wrinkled, rising gently onto its slightly convex dully or nitidulously reticulo-punctate upper 0.5-0.6. Face 1.3-1.7 as wide between eyes as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus moderately large; in profile low to very high, symmetrically to asymmetrically convex or bluntly subpyramidal to nasute; apical margin truncate to moderately convex and sometimes with a small median tubercle, sharply defined throughout and with the corners narrow and discrete but at most slightly reflexed. Malar space in female 0.75-1.1 and in male 0.80-0.90 as long as basal width of mandible. Mandible broad at base, strongly and evenly tapered apicad, 2.6-3.3 as long as wide across base of teeth, the teeth subequal or with lower tooth often a little shorter than upper. Occipital carina a sharp and narrow flange which joins the at most moderately elevated hypostomal carina below. Pronotum with humeral margin gently swollen, with or without a longitudinal groove; epomia more or less well developed in scrobe and in some species delicately prolonged dorsad and with a slight swelling above its upper end; lower front pronotal margin rounded-off or bluntly angled at mid-height; upper front margin sublaterally and across collar with a weakly elevated, sharp, translucent carina; dorso-median transverse area of collar swollen and sharply (sometimes foveolately) set off along its apical margin.

Mesoscutum with notauli fine and sharp, at least basad, and traceable 0.3-0.7 its length; surface in some species mat and finely granular but in others shining with more or less fine punctation. Mesopleuron with subalarum horizontal, swollen, ellipsoid, its summit often sharply crested only rearward toward post-specular carina but sometimes palpably crested throughout and becoming sharply carinate before apex; speculum swollen, mostly or partly smooth and shining but in some species variably invaded by punctures and wrinkles, at its anterio-ventral angle with a small pit that is connected with mesopleural suture by a fine, sometimes oblique, groove; prepectal carina fine, inclivous (but mostly well removed from front margin of mesopleuron), becoming weaker and a little recurved or sinuate on upper 0.5 where it approaches or reaches subalarum; no excrescence on lower prepectus; disc shining to mat, puncto-reticulate and wrinkled, in many species more finely sculptured and more shining on upper 0.5 but more coarsely and/or irregularly sculptured on lower 0.5, sometimes uniformly with coarse, granulate reticulate wrinkling; sternaulus sinuate, deeply impressed on basal 0.6 but faintly developed on apical 0.4. Hind coxa without a strong and polished groove beneath its attachment. Female front tibia slender to stout, sometimes inflated. Female 4th tarsomere usually with a broad, V-shaped apical emargination on fore leg, a shallower emargination on mid leg, and nearly truncate on hind leg (but weakly emarginate on all legs in A. tucumana). Metanotum convex in profile, moderately setose, its baso-lateral fossae more or less rounded and variably impressed (often deep), separated on meson by 0.7-1.0 the width of 1 fossa. Groove between metanotum and propodeum deep and rather broad in female, broader in male; its submedian tubercles detectable on both metanotal and propodeal face, weak to (more often) well defined or even strong, usually most conspicuous in male; sublateral tubercles usually detectable as a ventrally thickened carina on metanotal face but vague on propodeal face. Wing venation: areolet large and broad, intercubiti moderately to strongly convergent dorsad, 2nd abscissa of radius 0.6-1.1 as long as 1st intercubitus, width of areolet 1.0-1.3 its height; 2nd recurrent nearly vertical to gently inclivous or (in A. rufipes) sometimes slightly reclivous as well as with the upper 0.5 in many species often a little outbulged or outangled; discocubitus simply arched to broadly angled, with or without a short ramellus; mediella slightly to (more often) moderately or even strongly arched; axillus very close to anal margin of hind wing; brachiella often short and evanescing about 0.5 the distance between its origin on the submediella and the hind wing margin. Propodeum: spiracle 1.0-1.6 as long as wide; female profile rather elongate, the faces subequal or often with the basal surface definitely longer than the apical, which may be discrete and steeply declivous or (in A. tucumana) practically confluent with the rearward-sloping basal face; basal trans-carina traceable, often fine and sharp, throughout and extending straight across propodeal dorsum or bowed forward medially, well removed from base of propodeum (at about proximal 0.3-0.4 of basal face); apical trans-carina traceable throughout or sometimes indistinct, often sharp at least laterad, straight or medially with a gently curved or broadly triangular forward extension but always far from basal trans-carina; cristae low subcrescentic or subcuneate to strongly subligulate (A. rufipes); area basalis weakly defined, tetragonal, considerably narrowed rearward, longer than wide in position; areola often weakly defined laterally although frequently a little raised above surrounding surface, about square to elongately rectangular in position; male propodeum usually longer and lower than in female with the trans-carinae often stronger but the cristae averaging a little less prominent. First gastric segment without or with at most a weakly subcrescentic baso-lateral expansion on petiole; female petiole somewhat broad and flat and its postpetiole 0.8-1.7 as wide apically as long from spiracle to apex, male petiole also flattened on dorsum and its postpetiole only 0.60-0.70 as long as wide; ventro-lateral carina traceable, sometimes sharp throughout, but often at least partly weakened on petiole; dorso-lateral carinae sometimes percurrent and mostly sharp but often partly effaced on petiole; dorsal carinae sometimes (A. tucumana) almost absent and at most faintly suggested above spiracle but more often traceable (not sharp) on apex of petiole and basal 0.5-0.7 of petiole, where they enclose a low median area. Second gastric tergite in female shining to mat with fine to strong, sometimes granular micro-reticulation and with numerous, small to rather large, usually obscure but sometimes in part well defined punctures which emit setae that are often mostly shorter than the length of their interspaces but which in some species (A. festiva, A. tucumana) mostly equal or exceed the interspaces; in male with setae mostly equalling or exceeding the length of their interspaces and with micro-reticulation averaging coarser than in female. Gaster stout to rather elongate fusiform in female, long and slenderly cylindric or somewhat compressed in male. Ovipositor: sheathed portion 0.20-0.40 as long as fore wing; straight or slightly downcurved; slender to moderately stout, compressed; nodus low to rather high; notch well defined, strong to shallow, or sometimes (A. rufipes) weak or indistinct; dorsal valve on tip with profile gently convex, straight, slightly concave, or weakly sinuate; ventral valve on tip with fine, inclivously oblique to almost vertical (A. rufipes) ridges; tip 0.14-0.40 as high at notch as long from notch to apex.

RELATIONSHIPS. Anacis includes small to medium sized ischnines from Neantarctic, high Andean, and peripherally Neotropic South America; some 70-80 Australian and Tasmanian species also may belong in this genus. Only one member of the Australian complex, Cryptus exul Turner, has been described and Townes assigned it to Anacis in his recent overview of the world genera of Gelinae (1969).

As represented in South America, Anacis has the following unique or unusually characters which in concert distinguish it from other sympatric trachysphyroids:

(1). Female flagellum long to very long, delicately filiform, often as long as body, sometimes weakly enlarged on apical 0.5 but still basically filiform; its 1st segment unusually long, 5.9-10.0 as long as deep at apex.

(2). Male flagellum with tyloids on only 3 segments (often on 5, 6, 7 or more segments in other genera).

(3). Front weakly concave (deeply excavated in many other genera).

(4). Prepectal carina often (weakly) approaching subalarum, inclivous but well removed from front margin of mesopleuron.

(5). No projection or carina on lower prepectus.

(6). Sternaulus sinuate, deeply impressed on basal 0.5-0.6, faint to absent rearward.

(7). Hind coxa without a groove descending from its attachment.

(8). Groove between metanotum and propodeum deep and rather broad in female, even broader in male, its submedian tubercles defined on both faces and sometimes strong; sublateral tubercles usually detectable on metanotal face but obsolete on propodeal face.

(9). Areolet at least as broad as high, often 1.1-1.3 as broad as high.

(10). Mediella gently to strongly arched.

(11). Brachiella in some species short and fading out at 0.5 the distance from base to wing margin.

(12). Axillus close to anal margin of hind wing.

(13). Propodeal spiracle round or short-oval, 1.0-1.6 as long as wide.

(14). Basal trans-carina traceable throughout, straight or slightly to strongly bowed or angled forward mesad, always well removed from base of propodeum (ending at proximal 0.4-0.3 of dorsal face).

(15). Apical carina often traceable throughout, sometimes strong, usually remaining far from basal trans-carina.

(16). Cristae low subcuneate or subcrescentic to more rarely strongly projecting ligulate.

(17). First gastric tergite without a baso-lateral expansion.

(18). Petiole often more or less broad and flat.

(19). Ovipositor with sheathed portion 0.20-0.40 as long as fore wing; compressed; nodus and notch well defined to sometimes weak; tip ratio 0.14-0.40.

The long female 1st flagellomere, reduced number of tyloids on male flagellum, lack of a groove on hind coxa beneath its attachment, broad areolet, arched mediella, usually round propodeal spiracle, arrangement and contour of trans-carinae on propodeum, and lack of a baso-lateral expansion on the first gastric tergite are features especially useful in separation of Anacis from other South American genera of the Subtribe Ischnina. Within this assemblage, the sympatric Caenopelte and Dochmidium and the Andean-tropical Biconus appear especially close to Anacis. Ischnus also superficially resembles these genera, but remains trenchantly distinct from most other South American relatives in its complete lack of tubercles in the groove between metanotum and propodeum.

With regard to the Tasmanian Anacis exul, I have appended the description of a pair kindly sent in exchange by Dr. Michael Fitton of the

British Museum (Natural History). This species seems related to *Anacis* but obviously belongs in a phyletic line distinct from those extant in South America, as confirmed by its narrowly but nitiduously grooved hind coxa, almost zig-zag contour of the 2nd recurrent vein, and unusually proximate basal and lateral trans-carinae of the propodeum. Further study of the South American fauna (which includes several score undescribed species from tropical regions) and analysis of the large Australian complex of species will be necessary before generic lines can be drawn within this diverse and intriguing group. In any event, the Australian and South American *Anacis* and *Anacis* relatives apparently form a trans-Antarctic taxon roughly analogous to *Nothofagus* and *Eucryphia* among higher plants, to *Certonotus* and *Labena* among the more primitive ichneumonids, and to the *Hypodynerus-Pseudepipona* complex in eumenid wasps (Porter 1981).

GEOGRAPHIC DISTRIBUTION. *Anacis* in South America has numerous undescribed species in tropical Brasil, Colombia, Ecuador, and other adjoining countries. Its described species are mainly Neantarctic and Andean. *Anacis tucumana* inhabits cloud forest, puna, and páramo ecotones between Ecuador and northwest Argentina. *Anacis festiva* is in Chile from Northern Valdivian Forest south to Punta Arenas. *Anacis rubripes* extends from southern Coquimban Desert down through the Valdivian or *Nothofagus* zones south to more than 50° Latitude in Magallanes Province. Both species reach Argentina south of 40° Latitude. *Anacis stangeorum* and *Anacis rufipes* appear limited to Valdivian and Northern Valdivian Forest of Chile and bordering southwest Argentina. *Anacis hercana* has been collected only in relict Northern Valdivian forest in Andean foothills of Chile's Central Valley. Finally, the poorly known *Anacis varipes* may be restricted to the Pehuenar or *Araucaria* forests of Valdivian Chile.

KEY TO THE CHILEAN SPECIES OF *ANACIS*

(Based on females)

1. Mesoscutum mat and granular 2

1.' Mesoscutum shining, silky, with more or less well developed fine punctation 4

2. Fore wing moderately infumate with apex gradually a little paler and with a large postmedian hyaline band; 1st flagellomere 4.7 as long as deep apically; notauli traceable about 0.3 the length of mesoscutum; apical trans-carina of propodeum sharp throughout, higher than basal trans-carina, strongly bowed forward medially; ovipositor with sheathed portion 0.40 as long as fore wing, tip 0.32 as high at notch as long from notch to apex . . . . 6. *A. hercana* (Porter)

2.' Fore wing dark to hyaline, without contrasting pale and light areas; 1st flagellomere 5.9-10.0 as long as deep at apex; notauli 0.5-0.7 as long as mesoscutum; apical trans-carina of propodeum often vague or indistinct, especially toward meson where it is at most gently bowed forward, usually weaker than the basal carina; ovipositor with sheathed portion 0.30 as long as fore wing and its tip 0.14-0.23 as high at notch as long from notch to apex 3

3. Mesosoma pale red with black and white markings; gaster with ground color largely black and with conspicuous white bands on tergal apices; 1st flagellomere 8.5-10.0 as long as deep at apex; clypeus bluntly and asymmetrically subpyramidal in profile; humeral margin of pronotum swollen and without a groove; mesoscutal disc with uniformly delicate micro-reticulation; propodeal cristae low and crescentic; postpetiole 0.80-0.90 as wide at apex as long from spiracle to apex; setae on 2nd gastric tergite largely equal or surpass the length of their interspaces; ovipositor on tip with dorsal and ventral valves not depressed, ridges on ventral valve inclivously oblique . . . . 1. _A_. _festiva_ Porter

3.' Mesosoma and gaster black with sparse white markings; 1st flagellomere 5.9-6.6 as long as deep at apex; clypeus strongly asymmetric-pyramidal, nasute in profile; humeral margin of propodeum with a broad and shallow groove; mesoscutal disc with contrastingly coarser wrinkling apicad between notauli and more broadly behind terminus of notauli; postpetiole 1.1-1.3 as wide apically as long from spiracle to apex; setae on 2nd gastric tergite long but mostly well separated; ovipositor with dorsal and ventral valves depressed on tip, ridges on ventral valve almost vertical . . . . 5. _A_. _rufipes_ (Havrylenko & Winterhalter)

4. Thorax and propodeum with profuse white markings; all gastric tergites with a complete white apical band; apical margin of clypeus with a small, subdentate median projection; humeral margin of pronotum without a groove . . . . .2. _A_. _stangeorum_ Porter

4.' Mesosoma with white at most on anterior margin of pronotum, tegula, and subalarum; not all gastric tergites with a complete white apical band; no median projection on apical margin of clypeus; dorsal margin of pronotum with a conspicuous humeral groove 5

5. Legs mostly black with white markings; gaster with white on apex of 1st tergite, sometimes restrictedly on 2nd and 3rd tergite, and on broad apical bands on tergites 4-7; sheathed portion of ovipositor 0.50-0.60 as long as fore wing; nodus of ovipositor tip with an unusually large and deep notch . . . . 4. _A_. _varipes_ Porter

5.' Legs mostly orange; gaster with white at most on tergites 6-8 and only on 7 sometimes with a white apical band that is complete; sheathed portion of ovipositor 0.30-0.40 as long as fore wing; nodus with a small but distinct notch . . . . 3. _A_. _rubripes_ (Spinola)

1. _Anacis_ _festiva_ Porter

(Fig. 67, 72, 73, 127, 192, 206, 210)

Anacis _festiva_ Porter, 1967b. Stud. Ent. 10: 376-80. Type f: Chile, Talca Province, Altos de Vilches (Cambridge).

NEW SPECIMENS EXAMINED. 35 m: CHILE, Osorno Province, Parque Nacional Puyehue, camino a Antillanca, 14-II-1986, C. Porter, T. O'Neill; Llanquihue

Province, Ensenada, camino a Ralún, 26-27-II-1986, C. Porter, T. O'Neill, Río Petrohue Camping, Vincente Pérez Rosales Nacional Park, 2-III-1986.

2. Anacis stangeorum Porter

(Fig. 147, 189)

Anacis stangeorum, 1970. Acta Zool. Lilloana 26(2): 14-8; Type f: Argentina, Neuquén Province, Pucará, Lago Lacar (Tucumán).

3. Anacis rubripes (Spinola)

(Fig. 75-80, 130, 184)

Ichneumon (Cryptus) rubripes Spinola, 1851. In Gay: Historia física y política de Chile. Zoología 6: 492. Type f: Chile, Santa Rosa (Turin).

Baeocryptus rubripes Porter, 1967a. Stud. Ent. 10: 383-6.

Anacis rubripes Porter, 1970. Acta Zool. Lilloana 26(2): 18.

4. Anacis varipes (Porter)

(Fig. 128)

Baeocryptus varipes Porter, 1967b. Stud. Ent. 10: 386-88. Type f: Chile, Arauco, Butamalal, Nahuelbuta (Cambridge).

Anacis varipes Porter, 1970. Acta Zool. Lilloana 26(2): 18.

FIELD NOTES. This species has been collected only in the Pehuenar or Araucaria Region of Neantarctic Chile.

5. Anacis rufipes (Havrylenko & Winterhalter), 1949

(Fig. 129, 208)

Cryptopteryx rufipes Havrylenko & Winterhalter, 1949. Insectos del parque nacional Nahuel Huapi, Buenos Aires, p. 49. Type f: Argentina, Río Negro, Parque Nacional Nahuel Huapi (Castelar).

Trachysphyrus rufipes Porter, 1967. Mem. Amer. Ent. Inst. 10: 192-4.

Chromocryptus rufipes Townes, 1969. Mem. Amer. Ent. Inst. 12: 179-81.

TAXONOMY. Anacis rufipes previously has been placed in Trachysphyrus or in the presumably related genus Chromocryptus (sensu Townes 1969). Reexamination of this species has shown that it lacks a groove descending from the hind coxal attachment, has submedian tubercles on both the metanotal and propodeal face of the groove between the metanotum and propodeum, has a low and broad areolet (1.0-1.3 as wide as high), a more or less arched mediella, a short and apically obsolete brachiella, the propodeal spiracle less than 2.0 as long as wide, the propodeal trans-carinae far from each other and from the propodeal base, and the petiole unusually broad and flat. Most of these characters suggest that it should be placed in Anacis.

FIELD NOTES. Available records suggest that the present species inhabits the Northern Valdivian Forest and the Valdivian Forest biomes in Chile and adjacent parts of southwest Argentina.

HOSTS. Havrylenko and Winterhalter reared Anacis rufipes from the lasiocampid moth, Macromphalia dedecora. This is the only host record for any species of Anacis.

6. Anacis hercana (Porter)

(Fig. 178)

Trachysphyrus hercana Porter, 1967b. Stud. Ent. 10: 411-13. Type f:
Chile, Santiago, El Canelo (Ottawa).

TAXONOMY. This species remains known only from the unique type. I have not reexamined that specimen but believe that T. hercana should be transferred to Anacis on the evidence of its very broad areolet, strong but well separated basal and apical trans-carinae of the propodeum, and round propodeal spiracle.

7. Anacis exsul (Turner)

Cryptus exsul Turner, 1919. Ann. & Mag. Nat. Hist. (9)3: 299.
Type f: Tasmania, Mt. Wellington, 2300 ft (London).

Anacis exsul Porter, 1973. Psyche 79: 83.

Fore wing 5.5-6.6 mm long. Coloration: head and mesosoma black with extensive orange to orange-brown areas on head (clypeus and mandibles yellow in male); gaster black with orange-brown staining on tergites 5 (apically)-8 in female and 3 (apically)-7 in male; legs pallid, dull orange with coxae, trochanters, and more or less of trochantelli black or dusky, as well as with pale yellow to cream on some of the hind tarsomeres; flagellum in female pale orange-brown basally, followed medially by a broad white to cream colored annulus, and by darker brownish and dusky apical segments, in male dark brown to black except for a little red-brown suffusion basad on 1st segment; wings faintly brownish to hyaline. Flagellum in female long, as long as or a little longer than body, with median segments (in area of pale annulus) subtly enlarged, not at all flattened below toward apex and almost perfectly filiform; 1st segment 7.0 as long as deep at apex; in male weakly setaceous and a little longer than body, slightly more robust than in female, with linear, elongately bacilliform tyloids on segments 12-14, that on 12 nearly percurrent, those of 13-14 progressively somewhat shorter; 1st segment 4.0 as long as deep at apex. Front weakly concave well below (lower 0.3-0.4) above antennal sockets and here with fine transverse wrinkling (best developed in male), dorsad in female surface dully shining, silky, with extremely delicate reticulo-punctation but in male mat and more strongly micro-sculptured. Face 1.6 as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus rather large;

in profile low and weakly convex; apical margin practically truncate to gently convex in female, more strongly convex and medially somewhat produced in male with the apical rim finely but sharply differentiated and broader on the scarcely to slightly reflexed corners; in both sexes with a preapical median irregularity that is slightly tuberculiform or bituberculiform. Malar space in female 1.1 as long as basal width of mandible and in male 0.80 as long. Mandible robust and strongly tapering from base to apex, 2.3 as long as wide across base of teeth, the teeth subequal with lower tooth often (especially in male) a little shorter than upper. Occipital carina fine and sharp, joining the only weakly elevated hypostomal carina far below and at a rather broad angle. Pronotum with humeral margin scarcely swollen, weakly grooved by the presence of a row of shallow foveae that may be broad on anterior 0.3 but which narrows and weakens progressively apicad (best developed in female); epomia short, sharp in scrobe, but scarcely prolonged above or below, without a swollen or otherwise modified area above its upper end; lower front pronotal margin gently rounded, not toothed or angulate; upper front margin sublaterally and across collar with a narrowly flange-like carina that is lowest and nearly horizontal on dorsum; the transverse-median cervical swelling narrow but well defined, set off apically by its own steeply declivous hind margin (which is subcarinate on summit). Mesoscutum with notauli fine and in female weakly impressed, more strongly impressed in male, traceable 0.4-0.6 length of mesoscutum; surface dully shining and silky with extremely delicate puncto-reticulation in female, in male more mat with slightly coarser micro-sculpture. Mesopleuron with subalarum narrowly subcrescentic to weakly crescentic, its summit subcarinate to carinate (at least on apical 0.5); speculum large and swollen, extensively smooth and shining, at its lower anterior corner with a tiny pit which emits a delicate, nearly horizontal groove that extends rearward to mesopleural suture; prepectal carina gently inclivous and sharp to about upper 0.8 of mesopleuron and often irregularly traceable to subalarum; no excrescence on lower prepectus; disc with almost uniform fine micro-reticulation, in male with some delicate transversely biased wrinkling on upper 0.5; sternaulus broad and well but not sharply impressed on basal 0.5-0.6 of mesopleuron, gently upcurved and totally absent on apical 0.4-0.5 toward base of mid coxa. Hind coxa with a shallow but well defined and polished groove extending obliquely from its attachment (long in female, short in male). Female front tibia long and slender, but slightly inflated. Female 4th tarsomeres rather deeply emarginate apically on fore leg, moderately emarginate on mid leg, and only weakly emarginate on hind leg. Metanotum convex in profile with the apical face rather strongly declivous, its lateral fossae rounded, separated by as much or by somewhat more than the width of 1 fossa. Groove between metanotum and propodeum in female deep and narrow with the submedian tubercles acutely defined on both metanotal and propodeal faces, a little sharper and smaller on metanotum and a little larger and blunter on propodeum, as well as with the sublateral tubercles broadly and subacutely but very superficially detectable on metanotal face but absent on propodeal face; in male with groove broader and more open laterad and mesad than in female but with its tubercles similarly developed. Wing venation: areolet large and broad with intercubiti weakly to strongly and often differentially convergent above, 2nd abscissa of radius 0.8-1.2 as long as 1st intercubitus, areolet 1.0-1.2 as wide as high; 2nd recurrent inclivous on lower 0.5 and then rather abruptly outbulged and more or less straightened toward juncture with areolet; discocubitus broadly angled, with ramellus vestigial or short; mediella very strongly arched in both sexes; axillus close to anal margin of hind wing; brachiella often short, reaching 0.6 to much less the distance between its origin on submediella and hind wing margin. Propodeum with spiracle round; in female short and high, the basal face falling off rather steeply rearward, the apical face subequal to the basal, sharply discrete, and vertically declivous; basal trans-carina sharp throughout, swept forward to a very short but straight median abscissa which lies far from propodeal base at about proximal 0.3-0.4 of the basal face; apical trans-carina sharp throughout, thrust far forward onto the straight median abscissa and coming moderately close to the basal trans-carina; cristae large and well projecting ligulo-cuneate; area basalis practically horizontal, its lateral abscissa faint but clearly much tapering apicad, about 0.8 as long as wide at base but nearly 4.0 as long as wide at apex; areola irregularly hexagonal, about as wide as long; in male with profile longer and lower than in female so that the faces are almost smoothly confluent and descend strongly and regularly from propodeal base; basal trans-carina and area basalis about as in female; apical trans-carina much weaker than in female, fine, irregular, and almost straight across meson, its cristae broad but low and delicately subcrescentic; areola not clearly defined laterally, but longer than wide in position. First gastric segment without a baso-lateral expansion on petiole; female petiole broad and nearly flat and its postpetiole 1.4 as wide apically as long from spiracle to apex; male petiole markedly more slender than female and only a little flattened above, the male petiole markedly more slender than female and only a little flattened above, the male postpetiole 0.70 as long as wide apically; ventro-lateral carina sharp throughout in female, sharp on postpetiole but obsolete on petiole in male; dorso-lateral carina more or less fine and sharp on postpetiole and traceable but weak and beveled on petiole in both sexes; without vertical wrinkles on space between the lateral carinae; and with dorsal carinae finely and bluntly traceable toward apex of petiole and on much of postpetiole in female (defining a weak median elevation), but only faintly suggested in male. Second gastric tergite in female highly polished, with faint and delicate micro-reticulation throughout (a little stronger basad) as well as with very tiny and obscure, widely scattered punctures that emit short and much separated setae; in male shining but with much stronger micro-reticulation than in female and with more abundant tiny punctures that emit long and almost uniformly much overlapping setae. Ovipositor with sheathed portion 0.48 as long as fore wing; straight, rather stout, compressed; nodus high and with a tiny notch; dorsal valve on tip with a direct but rather strongly declivous profile, so that tip is robustly sagittate; ventral valve on tip with fine, well spaced, inclivously oblique ridges; tip 0.35 as high at notch as long from notch to apex.

17. Genus COSMIOCRYPTUS

Cosmiocryptus Cameron, 1902. Trans. Amer. Ent. Soc. 28: 371.
Type: *Cosmiocryptus violaceipennis* Cameron. Monobasic

Fore wing 4.8-12.8 mm long. Coloration with head and mesosoma shining black except for some white markings on head, gaster red (occasionally stained almost throughout with black), flagellum black with a white band, legs black with some red (especially on hind coxa, trochanter, and femur), wings black with metallic reflections. Body robustly elongate in female, more slender and elongate in male. Flagellum long (more than 0.5 length of body), in female slender, cylindric, filiform but becoming subtly swollen on apical 0.4 and with 1st segment 5.0-7.8 as long as deep at apex; in male setaceous with tyloids on segments 13-17(20), longitudinally oriented, and linear to ovoid in shape (in all species with at least 1 enlarged tyloid that is ovoid or rectangular), and with 1st segment 2.6-5.0 as long as deep at apex. Front moderately to strongly excavated, its surface on lower 0.5 smooth and polished with some weak wrinkles but on upper 0.5 with transverse wrinkling that occupies its central half or more and laterad of wrinkling with dull and granular puncto-reticulation (or sometimes more weakly mat above and with only a few transverse wrinkles medially). Face about 1.7 as wide between eyes as high from top of anterior tentorial pits to bottom of antennal sockets. Mandible broad and stout, strongly and evenly tapering from base to apex, 2.2 as long as wide across base of teeth, the teeth subequal in length. Clypeus large; in profile low to only moderately elevated, quite symmetrically to asymmetrically convex but without abrupt contours; its apical margin gently convex and a little more strongly produced on the median 0.5, which sometimes also is weakly bituberculate, its rim blunt on meson, sharper laterad, and slightly to strongly reflexed on corners. Malar space 0.67-0.90 as long as basal width of mandible. Occipital carina sharp and narrow, joining the scarcely to moderately raised hypostomal carina below. Pronotum with humeral margin broadly, deeply, and foveolately grooved (most strongly so anteriad); epomia strong in scrobe but at most weakly traceable meso-dorsad; lower front margin gently curved, without a tooth or angle; upper anterior margin sublaterally and across collar with a low and inconspicuous carina; the dorso-median swelling of collar set off apically by a superficial groove or sometimes by a row of strong foveae. Mesoscutum with notauli well marked but shallow and reaching 0.70-0.90 its length; surface shining, vaguely to definitely micro-reticulate, with abundant sharp, medium sized adjacent to subadjacent punctures that become densest on the central lobe as well as usually with extensive strong longitudinal wrinkles on central lobe toward its apex (in some males without such wrinkles and with the punctures much sparser and less conspicuous than previously described) but in C. aricae with extensive reticulate wrinkling toward and behind end of notauli and with less shining surface than in other species. Mesopleuron with subalarum horizontal and sharply crescentic but not actually carinate (except sometimes on its apical 0.5); speculum smooth, polished, and little invaded by punctures or wrinkles, its lower margin sharply inflexed and set off immediately below by a broad and irregular depression; prepectal carina sharp, more or less sinuately inclivous and usually traceable dorsad to subalarum; prepectus unarmed or with an at most feeble and inconspicuous ventral ridge; disc strongly to grossly reticulate or irregularly wrinkled with polished interstices and most often also with a large, smooth and shining swollen area along prepectal carina above opposite speculum (in some males and occasional females with almost entire disc smooth and polished); sternaulus broad, foveolate, and sinuate in course, traceable throughout but very shallow on apical 0.4. Hind coxa with a broad and polished but short vertical groove descending from its articulation. Fore tibia in female slender to stout and sometimes inflated. Female hind metatarsus with many, irregularly scattered outstanding strong bristles among its long and dense setae. Female 4th tarsomeres with a moderately strong to deep, weakly asymmetric V-shaped emargination on apex. Metanotum convex to almost flat in profile, with a few setae toward apex, its baso-lateral fossae large, triangular, and at base separated by about 0.5 the width of one fossa (but in C. weyrauchi with the fossae round and well separated even on meson). Groove between metanotum and propodeum strong, deep and narrow; the submedian tubercles conspicuous to tiny and sharp on hind face of metanotum but obsolete on propodeum at anterior terminus of median longitudinal carinae; sublateral tubercles strong (bluntly conical or flange-like) on hind face of metanotum but scarcely developed at anterior end of lateral longitudinal carinae on front face of propodeum; hind rim of metanotum prolonged laterally as a high and sharp carina across summit of the upper metapleuron. Wing venation: areolet large and often rather high, intercubiti quite strongly convergent above, 2nd abscissa of radius 0.6-0.7 as long as 1st intercubitus; 2nd recurrent a little inclivous and more or less markedly curved; discocubitus weakly angled with ramellus short or often absent, its basal abscissa a little sinuate; mediella straight beyond base; axillus long, close to or only a little diverging from anal margin of hind wing. Propodeum with spiracle 1.4-2.2 as long as wide; short and high in female, a little longer and lower in male, with basal face in profile arched and then falling off behind to meet the well differentiated and nearly vertical (female) to more or less oblique (male) apical face; basal trans-carina sharp throughout, thrust far forward medially with a short and straight central segment that reaches close to propodeal base, but with the long lateral segments recurving far from propodeal base; apical trans-carina more or less traceable throughout but often irregular or obsolete on lateral segments although sharp on the straight median segment which forms the hind margin of areola, thrust forward but far from basal trans-carina; cristae subcuneate or bluntly cuneate to rather large and more or less strongly projecting subligulate; area basalis well defined, broad basally but strongly narrowed apicad; areola well outlined, irregularly hexagonal and 0.90-1.0 as wide as long (longer in some males, in which all carinae may be either weaker or stronger than described for females). First gastric tergite at most with a low baso-lateral flange on petiole; post-petiole in female strongly expanded and 1.5-2.3 as wide apically as long from spiracle to apex and in male parallel-sided to expanded and 1.0-1.8 as wide apically as long; ventro-lateral carina distinct throughout but sometimes weaker on postpetiole; dorso-lateral carinae varying from obsolescent to more or less detectable throughout; dorsal carinae absent or vague, when present best developed but blunt on apex of petiole and base of postpetiole. Second gastric tergite: smooth, a little dully to brightly shining; with fine and obscure to conspicuous and even a little granular micro-reticulation; punctures small, obscure, and widely scattered; setae vary from mostly sparse to largely approaching or sometimes exceeding the length of their interspaces. Gaster robustly fusiform in female, longer and more weakly fusiform in male. Ovipositor with sheathed portion 0.40-0.64 as long as fore wing; straight, stout to moderately slender, moderately to strongly compressed; nodus conspicuous, low but distinct, or obsolete but always with a sharp to shallow notch; dorsal valve on tip with a concave or slightly sinuate to direct or convex profile between notch and apex; ventral valve on tip with inclivously oblique ridges which become more crowded and are sometimes comparatively stronger toward ovipositor apex; tip 0.16-0.28 as high at notch as long from notch to apex.

RELATIONSHIPS. Cosmiocryptus seems to have evolved on the west Andean slopes and in the Coastal Desert of Perú and northern Chile. It probably represents a conservative lineage vicariant with regard to the central and south Chilean genus Xiphonychidion.

Some of the more prominent diagnostic features of Cosmiocryptus include: the presence on at least 1 male flagellomere of an oval or at least elongately rectangular (not sharply linear) tyloid; the large and at most moderately elevated clypeus with its somewhat convexly produced median apical margin; unelevated occipital carina and at most moderately raised hypostomal carina; humeral margin of pronotum with a strong and foveolate groove; scrobally sharp but dorsally evanescent epomia; lack of a tooth or angulation on the lower front pronotal margin; anterior pronotum dorsally across collar with only a low and inconspicuous carina; notauli well traceable 0.70-0.90 the length of mesoscutum; mesoscutal surface shining with abundant but discrete to well separated medium sized punctures and usually with some very strong longitudinal wrinkles on central lobe toward terminus of notauli, but sometimes with more wide-spread and reticulate wrinkling; speculum polished and mostly smooth; mesopleural disc strongly to grossly wrinkled with polished reticular interstices and most often (not always) with a large smooth and shining area dorsad along prepectal carina opposite speculum; prepectus unarmed below; hind margin of metanotum with both submedian and sublateral tubercles; areolet large and often high, 2nd abscissa of radius 0.6-0.7 as long as 1st intercubitus; inclivous 2nd recurrent; discocubitus weakly angled, ramellus short or absent, 2nd abscissa weakly sinuate; axillus close to or only weakly diverging from anal margin of hind wing; propodeal spiracle 1.5-2.2 as long as wide; basal and apical trans-carinae of propodeum more or less traceable, basal sharp throughout but the apical usually only sharp back of areola; cristae stout; comparatively short but prominent; petiole with at most a low baso-lateral flange; surface of postpetiole unusually smooth, the dorsal carinae at most vaguely suggested on apex of petiole and base of postpetiole; second gastric tergite shining with small and scattered punctures and setae which vary from sparse to dense; ovipositor always with a notch and nodus on dorsal valve tip (nodus sometimes obsolete but its position indicated by the notch); tip 0.16-0.28 as high at notch as long from notch to apex.

GEOGRAPHIC DISTRIBUTION Cosmiocryptus is restricted to the west Andean slopes and fertile lowland river valleys of the Pacific coastal region in Perú and northernmost Chile. Most of the species occur between 2000-3000 m altitude, but C. violaceipennis has been collected from 2400 m down to sea-level.

KEY TO THE SPECIES OF COSMIOCRYPTUS

(Male of C. aricae and of C. leptaechma unknown)

1. Apical margin of clypeus with a pair of tubercles on median 0.3; male 1st flagellomere 2.6-3.0 as long as deep at apex; female malar space 0.90 as long as basal width of mandible; 2nd gastric tergite smooth and shining, slightly micro-reticulate, with very sparse setae in female and in male with setae more numerous but averaging shorter

than the length of their interspaces . . . . 4. C. weyrauchi (Porter) (Fig. 81, 82, 84, 85, 131)

1.' Apical margin of clypeus not tuberculate; male 1st flagellomere 3.7-5.0 as long as deep at apex; female malar space often less than 0.90 basal width of mandible; 2nd gastric tergite often (in females) with micro-reticulation stronger and setae denser (in males consistently longer than their interspaces) than described above 2

2. Females 3

2.' Males 6

3. First flagellomere 6.2-7.8 as long as deep at apex; temple 0.6-0.8 as long as eye in dorsal view; sheathed portion of ovipositor 0.60 as long as fore wing; both dorsal and ventral valves of ovipositor strongly flattened on tip, dorsal valve gently concave in profile between notch and apex . . . . 2. C. diplatys (Porter) (Fig. 83, 86)

3.' First flagellomere 5.5-6.0 as long as deep at apex; temple 0.4-0.5 as long as eye in dorsal view; sheathed portion of ovipositor 0.40-0.50 as long as fore wing; ovipositor valves not strongly depressed on tip, dorsal valve straight or slightly convex in profile between notch and apex 4

4. Fore tibia stout but not inflated; postpetiole 1.5 as wide apically as long from spiracle to apex; ovipositor slender with nodus very weak, tip 0.16 as high at notch as long from notch to apex; dorsal valve minutely tuberculate on tip . . . . 3. C. leptaechma Porter (Fig. 133, 175)

4.' Fore tibia palpably inflated; postpetiole 1.5-2.0 as wide apically as long from spiracle to apex; ovipositor more robust with a distinct nodus, its tip 0.22-0.28 as high at notch as long from notch to apex 5

5. First flagellomere 5.5-6.0 as long as deep at apex; mesopleuron grossly reticulate but always with a swollen and shining area above along prepectus facing speculum; 2nd gastric tergite with short setae that mostly approach the length of their interspaces; ovipositor stout, moderately compressed, profile between nodus and tip faintly sinuate . . . . 1. C. violaceipennis (Cameron) (Fig. 87, 134)

5.' First flagellomere 5.0 as long as deep at apex; mesopleuron strongly but not grossly reticulately wrinkled, without a shining swollen area dorso-anteriorly; 2nd gastric tergite with setae much shorter than their interspaces; ovipositor strongly compressed, nodus high and with a straight taper between notch and apex . . . . .5. C. aricae Porter (Fig. 132, 174)

6. Median 0.3 of clypeus produced and with a pair of blunt tubercles; 1st flagellomere 2.6-3.0 as long as deep at apex; setae on 2nd gastric tergite average shorter than their interspaces . . . . 4. C. weyrauchi (Porter)

6.' Clypeal apex etuberculate; 1st flagellomere 3.7-5.0 as long as deep at apex; setae on 2nd gastric tergite consistently exceed their interspaces 7

7. Mesoscutum strongly shining with extensive but delicate punctation and wrinkling; flagellum with only the 3rd tyloid (counting from base) unusually broad, the rest ovoid to linear . . 2. C. diplatys (Porter)

7.' Mesoscutum rather dully shining, with abundant dense punctures and wrinkles; flagellum with at least 2nd and usually also the 1st and 3rd tyloids broadly oval . . . . 1. C. violaceipennis Cameron

DISCUSSION. My recent article on Cosmiocryptus in the Peruvian and Chilean coastal desert (Porter 1985b) contains descriptions of the species keyed above.

Cosmiocryptus in Chile is confined to the Puna of Tarapacá Province at altitudes between 3000 and 3500 m. Only Cosmiocryptus weyrauchi and C. aricae as yet have been found in Chile. The other species are known from the Puna, Prepuna, and coastal river valleys of Perú between Lima and Trujillo. Since the Puna offers a continuous belt of desertic and semidesertic vegetation between south Ecuador and north Chile, it is probable that all 5 species of Cosmiocryptus range throughout this rather homogeneous floristic province. More collecting at all seasons of the year will be necessary to elucidate the geographic limits of these and other north Chilean and Peruvian ichneumonids.

Cosmiocryptus aricae, with its comparatively strongly rugose mesoscutum and mesopleuron, has been placed tentatively in this genus. Additional specimens of both sexes are needed to establish its full range of variation and proper generic affinities.

18. Genus CHILECRYPTUS Porter, new genus

Type species: Trachysphyrus rhadinus Porter, 1967a. Mem. Amer. Ent. Inst. 10:187.

Fore wing 6.2-15.0 mm long. Coloration with head, mesosoma, and gaster black and in female with few white markings, often confined to ocular orbits, but in male with white more widely scattered on mesosoma and on gastric tergites 3 or 4-7; flagellum black with a white band; legs black, in female with white confined to part of hind tarsus and in male with white markings more widespread but not profuse; wings moderately to deeply infumate in all females and most males but nearly hyaline in some males. Flagellum in female long and slender, sometimes a little stouter on preapical 0.5 than on basal and slightly flattened below toward apex, weakly setaceous or practically filiform, its 1st segment 5.9-7.0 as long as deep at apex; in male also very long, slightly heavier than in female and gently setaceous; with tyloids on segments 14-20, tyloidal shape linear and sharp to narrow bacilliform or very long elliptic, tyloids almost longitudinal to a little oblique on their segments, those on segments 14-17 subpercurrent, usually beginning at apex and ending a little before base of their segments, shorter apicad, 1st segment 2.5-4.0 as long as deep. Front concave, on lower 0.5-0.3 toward antennal sockets smooth and highly polished with vague and sparse trans-biased wrinkling, but on upper 0.5-0.7 dully shining to mat and delicately to strongly puncto-reticulate, reticulately wrinkled, or transversely wrinkled. Face 1.8-2.0 as wide as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus large; low to strongly elevated and with its profile bluntly convex to obtusely and symmetrically to asymmetrically subpyramidal to pyramidal; apical margin practically truncate to gently convex, on median 0.6 weakly differentiated or blunt, becoming wider and sharper laterad as it expands onto the broad and definitely reflexed corners. Mandible broad and strongly, evenly tapered from base to apex, 2.1-2.6 as wide across base of teeth as long; teeth subequal. Malar space in female 0.60-0.80, in male 0.60-0.70 as long as basal width of mandible. Occipital carina sharp and narrow, sometimes slightly raised latero-ventrally, joining the moderately raised hypostomal carina below at a sharp to quite broad angle (C. rhadinus). Pronotum with humeral margin little swollen and bearing a broad and deep to narrow and often apically weaker, foveolate and percurrent groove; epomia strong and sharp (more rarely weak) in scrobe and usually prolonged some distance below and above, usually with a broad but low and undifferentiated swelling above its dorsal end; its lower front margin broadly angled and with a small but stout to well projecting and large tooth at mid-height; upper margin sublaterally and across front of collar with a moderately high (sometimes very low) flange that becomes oblique on collar and partly overhung by the collar's dorso-median swelling which is well developed and set off apically by a more or less foveolate transverse depression. Mesoscutum with notauli well defined, at least basad, and reaching 0.5-0.8 its length; surface dully shining to mat with variably developed fine, granular micro-reticulation and medium-small to minute, well defined to somewhat obscure, mostly subadjacent to adjacent or reticulately confluent punctures, as well as often with trans-biased wrinkling along notauli and on peripheries of lateral lobes and often with stronger, longitudinal or reticulate wrinkling between notauli apicad and over an extensive area behind their terminus. Mesopleuron: subalarum horizontal, long ellipsoid to thickly subcrescentic and with its summit vaguely crested but only carinate at apex (in some males carinate on summit); speculum swollen and with its disc almost perfectly smooth and polished, at its anterio-ventral corner with a small pit that connects with the mesopleural suture by a horizontal to strongly oblique groove that is much invaded by reticulate wrinkles; prepectal carina sharp and nearly vertical to inclivous on lower 0.6-0.8 of mesopleuron, weaker and recurved or sinuate dorsad but usually traceable to subalarum; lower prepectus without an excrescence; disc almost uniformly finely and granularly to strongly or coarsely and vermiculately reticulo-rugose, the wrinkles sometimes with a transverse bias dorsally toward subalarum; sternaulus sinuate and percurrent, notably upcurved and deepest on basal 0.6-0.8 and the becoming shallower and straightened or decurved in its course to base of mid coxa. Hind coxa with a strong and polished narrow to broad groove reaching a short distance vertically beneath its attachment. Female fore tibia slender, not or weakly inflated. Female 4th tarsomeres on apex with a strong, V-shaped emargination on fore leg and a weaker or almost equally strong emargination on mid and hind leg. Metanotum in profile weakly convex to strongly raised, its baso-lateral fossae medium sized to large and deep, separated on meson at base by a little to considerably less than the width of 1 fossa. Groove between metanotum and propodeum in female deep and narrow (at least across dorsum) and with the submedian tubercles represented on metanotal face by a small, rounded or conical excrescence but absent on propodeal face, as well as with the sublateral process carinately defined and sometimes rather large on metanotal face but also absent in propodeal face; in male similar to female but broader and more open and with a faint trace of median tubercles on propodeal surface. Wing venation: areolet large and sometimes unusually high, intercubiti weakly to strongly convergent above, 2nd abscissa of radius 0.6-0.8 as long as 1st intercubitus, areolet 0.1-1.2 as high as wide; 2nd recurrent vertical to a little inclivous, gently curved or sometimes more strongly curved on upper 0.5; discocubitus broadly angled, usually with a ramellus; mediella straight to at most weakly arched; axillus close to anal margin of hind wing. Propodeum with spiracle 1.7-2.4 as long as wide; in female more or less short and high with apical face well differentiated and steeply to vertically declivous; basal trans-carina usually distinct throughout, broadly thrust or curved forward medially, so that the central abscissa is long and transverse to narrowly curved or angulate, reaching basal 0.2 or dorsal surface of propodeum; apical trans-carina strong medially and weaker laterad, vague throughout, or absent, prolonged medially where it forms a transverse central abscissa but well removed from the basal trans-carina; areola large, broad, hexagonal to pentagonal, 1.1-2.0 as high as wide; area basalis about 2.0-3.0 as wide as long, steeply declivous to front of propodeum, and with its sides moderately to strongly convergent apicad; cristae bluntly cuneate to ligulate, often strongly to very strongly projecting; in male longer and lower than in female, its carinae and cristae often (not always) stronger, the areola often longer than wide. First gastric segment: without a baso-lateral excrescence on petiole (at most with a tiny flange); petiole long and slender; postpetiole in female only 1.0-1.4 as wide apically as long from spiracle to apex, in male 0.6-0.8 as wide; ventro-lateral carina more or less sharp throughout, best developed on postpetiole; dorso-lateral carina traceable throughout but sharp on postpetiole and weaker on petiole, or often only developed on postpetiole; dorsal carinae in female well defined apically on petiole and on base of postpetiole, sometimes almost sharp, enclosing a low to often palpably elevated median area, absent or faint in male; surface of petiole between the longitudinal carinae laterally with at least a few weak vertical wrinkles basad and sometimes with more or less fine and irregular vertical wrinkling throughout. Second gastric tergite in female smooth and brightly or a little dully shining with fine but distinct to very fine and almost evanescent micro-reticulation or minute aciculation and with abundant tiny and superficial punctures which emit moderately long and irregularly well separated to uniformly somewhat overlapping setae (setae always at least in good measure approaching or exceeding the length of their interspaces); in male with setae longer than in female and mostly as long as or longer than their interspaces. Ovipositor with sheathed portion 0.40-0.50 as long as fore wing; straight or a little decurved, somewhat compressed; nodus low to vague but with a tiny and sharp notch; dorsal valve with a more or less concave or direct profile between notch and apex;

ventral valve on tip with well developed, inclivously oblique to almost vertical ridges; tip 0.25-0.35 as high at notch as long from notch to apex.

GENERIC NAME. A Neolatin conflation from the country, Chile, and *Cryptus*, a generic name often used for trachysphyroid mesostenines. The combination is regarded as masculine.

SPECIES INCLUDED. *Ichneumon* (*Cryptus*) *tetracanthus* (Spinola 1851), *Trachysphyrus ithyption*, *T. rhadinus*, and *T. rhopalum* (all Porter 1967a).

RELATIONSHIPS. Along with *Cosmiocryptus* and *Neocryptopteryx*, this genus belongs to an assemblage of large subequatorial South American trachysphyroids in which the groove between the propodeum and metanotum has tubercles clearly developed only on the metanotal face, in which the 2nd recurrent vein is usually vertical to slightly inclivous, and which has the mediella vein straight in females and at most weakly arched in males. It differs from *Cosmiocryptus* by its more densely and regularly punctate and/or wrinkled mesoscutum and mesopleuron, by having prominent dorsal carinae on the apex of the petiole and basal part of the postpetiole (at least in females), by its uniformly narrow tyloids, and by lacking any red coloration on the gaster. It may be distinguished from *Neocryptopteryx* by its more finely punctate and wrinkled mesoscutum, steeply declivous area basalis, more slender postpetiole and more densely setose 2nd gastric tergite. *Chilecryptus* also differs from its close relatives, and from many other *Trachysphyrus* Group genera, by having the front carina of its propodeal collar oblique (instead of vertical) with the postjacent transverse swelling unusually prominent and slanted forward so as to overlap the anterior flange.

GEOGRAPHIC DISTRIBUTION. *Chilecryptus* is confined to Neantarctic Chile and, south of about 40° Latitude, to adjacent Argentina. It seems concentrated in the Valdivian Forest biome, but has some representation in every natural community from Coquimban Desert to ecotones between Patagonian Steppe and *Nothofagus* forest on both sides of the Strait of Magellan.

KEY TO THE SPECIES OF *CHILECRYPTUS*

FEMALES

1. Setae of 2nd gastric tergite mostly exceed the length of their interspaces; setae of following tergites very dense so that the surface has a velvety lustre; mesoscutal sculpture consisting mostly of delicate micro-reticulation so that the surface is opaque; mesopleural disc with unusually gross reticulate wrinkling; basal trans-carina of propodeum often with crescentic or tubercular sublateral cristae; gaster always wholly black . . . . 4. *Chilecryptus tetracanthus* (Spinola)

1.' Setae of 2nd gastric tergite usually in part equalling the length of their interspaces but not uniformly so; setae of following tergites denser than on 2nd but not so crowded as to impart a uniformly velvety lustre to the surface they cover; mesoscutal sculpture mat to somewhat shining with small but well defined largely adjacent to confluent punctures and often with fine, trans-biased wrinkling along the notauli; mesopleural disc with moderately coarse to delicately granular sculpture; basal trans-carina without or with weaker sublateral cristae; gaster often with white markings on some of the apical tergites 2

2. First flagellomere 6.5-6.9 as long as deep apically; propodeal cristae large and strongly projecting ligulate; ovipositor tip with nodus vague, dorsal valve with a gradual and almost direct taper between notch and apex . . . . 3. Chilecryptus ithyption (Porter)

2.' First flagellomere 5.8-6.5 as long as deep apically; propodeal cristae short-ligulate, subligulate, or bluntly cuneate; nodus low but distinct, dorsal valve with a convex taper between notch and apex 3

3. Petiole long and slender; postpetiole 1.0-1.2 as wide apically as long from spiracle to apex . . . . 1. Chilecryptus rhadinus (Porter)

3.' Petiole very broad and flattened above; postpetiole 1.3 as wide apically as long from spiracle to apex . . . . 2. Chilecryptus rhopalum (Porter)

MALES

(Male of C. rhopalum unknown)

1. Wings dark, tegulae black, mid coxae with at least some white below; mesoscutum with scarcely a trace of wrinkling along notauli; mesopleuron strongly to grossly reticulately wrinkled with large shining enclosures, at least on lower 0.5; propodeal cristae long and strongly projecting ligulate to cuneate . . . . .4. Chilecryptus tetracanthus (Spinola)

1.' Wings vaguely darkened or practically hyaline, tegula with some white, mid coxa more or less white below; mesoscutum usually with trans-biased wrinkling along notauli and on peripheries of lateral lobes; mesopleuron usually with comparatively fine, more complex wrinkling without shining enclosures; cristae long or short 2

2. Clypeus prominently raised, bluntly subpyramidal in profile; mesoscutum finely but rather strongly micro-reticulate; propodeal cristae broad and strongly projecting subligulate; humeral margin of pronotum with a broad and nearly percurrent white band; pair of white spots at base of scutellum; white spot beneath hind wing base . . . . 1. Chilecryptus rhadinus (Porter)

2.' Clypeus in profile very weakly raised; mesoscutum with a silky lustre and not as strongly micro-reticulate; cristae very large and strongly projecting ligulate; only pronotal collar white; no white spot beneath origin of hind wing . . . 3. Chilecryptus ithyption (Porter)

1. *Chilecryptus rhadinus* (Porter), new combination

(Fig. 6, 88-91)

Trachysphyrus rhadinus Porter, 1967a. Mem. Amer. Ent. Inst. 10: 187-90. Type f: Chile, Santiago Province (Cambridge).

NEW SPECIMENS EXAMINED. 12 f and 21 m: ARGENTINA, Nequén Province, Pucará ca. Chilean border on Lago Lacar west of San Martín de los Andes, 11-15-XII-1969, C. Porter, I-1970, S. Schajovskoi; CHILE, Magallanes Province, Parque Chabunco ca. Punta Arenas, 22-II-1986, C. Porter, T. O'Neill (Porter).

FIELD NOTES. My specimen from Punta Arenas was swept from *Baccharis* in a large clearing among forest dominated by *Nothofagus betuloides*.

This widely distributed species occupies every Neantarctic Chilean biome from sealevel to at least 1400 m, having been cited from southern Coquimban Desert, the Central Coastal Cordillera, Central Valley, the foothills of the Central Andean Cordillera, Northern Valdivian Forest, at low altitudes in the Southern Andean Cordillera, in the Pehuenar, Valdivian Forest, Valdivian Cordillera, the Aisén Cordillera, and the Magallanes Interoceanic Region.

2. *Chilecryptus rhopalum* (Porter), new combination

Trachysphyrus rhopalum Porter, 1967a. Mem. Amer. Ent. Inst. 10: 190-1. Type f: Chile, O'Higgins Province, Bosques de los Conservados (Townes).

FIELD NOTES. This species remains known from the type series, taken at Bosque de los Conservados in O'Higgins Province of Chile in the transition zone between the Central Valley and Central Andean Cordillera.

3. *Chilecryptus ithyption* (Porter), new combination

(Fig. 136)

Trachysphyrus ithyption Porter, 1967a. Mem. Amer. Ent. Inst. 10: 185-7. Type f: Chile, Chiloé Island, Dalcahue (Townes).

NEW SPECIMENS EXAMINED. 1 f: CHILE, Cautín Province, Pucón (Península en Lago Villarrica), 25-30-XI-1984, C. Porter, T. O'Neill (Porter).

FIELD NOTES. Most records for *C. ithyption* are from Valdivian Forest and Northern Valdivian Forest. The northernmost specimen was taken at 1100 m at Estero de Leiva in Linares Province. The most austral records are from Chiloe Island.

4. *Chilecryptus tetracanthus* Spinola, new combination

(Fig. 7, 92-96, 135, 195)

Ichneumon (*Cryptus*) *tetracanthus* Spinola, 1851. *In* Gay: Historia física y política de Chile. Zoología 6: 482. Type: f, Chile, northern part (Turin).

Trachysphyrus *tetracanthus* Porter, 1967a. Mem. Amer. Ent. Inst. 10: 182-4.

NEW SPECIMENS EXAMINED. 37 f and 20 m: ARGENTINA, Neuquén Province, Pucará ca. Chilean border on Lago Lacar west of San Martín de los Andes, 11-15-XII-1969, S. Schajovskoi; CHILE, Llanquihue Province, Río Petrohue Camping, Parque Nacional Vincente Pérez Rosales, 2-III-1986, C. Porter, T. O'Neill (Porter).

FIELD NOTES. *Chilecryptus* *tetracanthus* often abounds in shaded localities near water (e.g., at El Canelo in the Andean Precordillera near Santiago, Chile). It is cited in Chile from Coquimbo to Tierra del Fuego and spills over into Argentina from Neuquén Province southward.

This species occurs in almost every Chilean biome from the Coquimban Desert to the Megallanes Interoceanic Region. Apparently, it is restricted to altitudes from less than 1000 m down to sealevel.

19. Genus *NEOCRYPTOPTERYX*

Neocryptopteryx Blanchard, 1947. Commun. Zool. Mus. Hist. Nat. Montevideo 2 (42): 1. Type: (*Neocryptopteryx* *orientalis* Blanchard) = *blanchardi* Townes 1969. Monobasic.

Fore wing 4.1-12.9 mm long. Coloration: head and body black, occasionally with dark red or reddish brown sparsely on head and mesosoma and on some of the basal gastric tergites in part, as well as with white marks (sparse except on gaster) which often include complete (sometimes extensive) or interrupted bands on some of the more apical gastric tergites; flagellum black to reddish brown, in many species with a white band; legs mostly black, orange, or dull red, often with some white markings; wings dark to almost hyaline in some males. Body in female robust to moderately elongate fusiform, in male slender fusiform and cylindroid. Flagellum in female long (0.6-1.0 the length of body), usually filiform and in most species vaguely, if at all, flattened below (in *N. zaceras* strongly flattened ventrally toward apex), and with 1st segment 4.1-7.2 as long as deep at apex; in male even longer and a little more robust than in female, setaceous, with sharp and linear tyloids on segments 12-17, of which that on 12 is sharp and linear, longitudinal, and confined to apical 0.5 of segment, those of 13-14 are similar to the foregoing but nearly percurrent, that on 15 is similar to preceeding but a little ascendantly oblique, while those of 16-17 are short, ascendantly oblique, and located progressively farther dorsad on their segments; the 1st 3.2-3.9 as long as deep at apex. Front gently concave with surface often uniformly shining with irregular but usually trans-biased to regular transverse wrinkling, sometimes more or less mat, especially on upper 0.5 (more rarely becoming more matly sculptured above than below), the frontal orbits often swollen but upper and lower halves of front not sharply discrete. Malar space 0.70-1.0 as long as basal width of mandible in female, 0.60-1.0 as long in male. Face 1.6-2.0 as wide as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus large; in profile often high convex or bluntly, strongly and more or less asymmetrically pyramidal, more rarely low and/or very asymmetrically or irregularly convex; apical margin truncate to gently convex, without a tooth or tubercle; corners slightly to sometimes broadly reflexed. Mandible broad and stout, evenly and strongly tapering from base to apex, about 2.1-2.5 as long as wide across base of teeth, teeth subequal. Occipital carina sharp and narrow or in a few species considerably elevated ventrad, joining the weakly to moderately raised or occasionally scoop-shaped hypostomal carina below. Pronotum with humeral margin broadly, percurrently and foveolately grooved; epomia usually but not always strong in scrobe, usually prolonged some distance dorsad and with a distinct but undifferentiated swelling or even a sublaminate area above its dorsal end; lower front margin broadly angled and sometimes with a small, stout tooth at mid-height; upper front margin sublaterally and across collar with a sharp, sometimes inconspicuously flange-like carina; dorso-median area of collar swollen and sharply, more or less foveolately set off along its posterior margin. Mesoscutum with notauli rather shallow but traceable 0.4-0.7 its length; surface usually shining and with moderately large to coarse, usually strong, subadjacent to reticulately confluent punctures and with wrinkling usually well developed along notauli, between notauli rearward, and behind end of notauli or, in some species, with mesoscutal surface uniformly and strongly puncto-reticulate or very grossly rugoso-punctate. Mesopleuron with subalarum horizontal, narrow, weakly swollen ellipsoid or crescentic, its summit often bluntly crested or even carinate; speculum smooth and shining or (less often) much invaded by punctures and wrinkles, in lower front corner with a tiny pit that is connected by a delicate groove to the mesopleural suture (in more grossly sculptured species these details may be effaced); prepectal carina usually gently to strongly inclivous and approaching front margin of mesopleuron at its upper 0.5-0.8 and then more or less developed over a recurved course that sometimes takes it as far as subalarum (more nearly vertical in N. ocris); lower prepectus without an excrescence; disc throughout with strong to coarse reticulate wrinkling; sternaulus well developed and upcurved to almost straight on its basal 0.6-0.7, becoming much weaker and straightened or decurved on apical 0.4. Hind coxa with a sharp and shining, slightly oblique groove that descends from its attachment. Female fore tibia weakly to conspicuously inflated. Female 4th tarsomeres with a prominent V-shaped groove on front leg, much less emarginate to truncate on mid and hind leg. Groove between propodeum and metanotum sharp and narrow (broader in males); its submedian tubercles tiny but sharp on metanotal face but obsolete on propodeal face; the sublateral tubercles usually obsolete but occasionally detectable on metanotal face of groove. Wing venation: areolet large and high, intercubiti weakly to strongly convergent above, 2nd abscissa of radius 0.5-0.8 as long as 1st intercubitus, areolet 1.0-1.4 as high as wide; 2nd recurrent straight and vertical to weakly reclivous and sometimes a little outcurved on upper 0.5; discocubitus slightly to rather strongly but broadly angulate, ramellus sometimes absent but more often present and short (more rarely long); mediella more or less straight in females to gently arched in males; axillus very close to anal margin of hind wing. Propodeum: spiracle 1.3-3.0 as long as wide; in female more or less short and high with the basal and apical faces discrete, in male longer and lower than in female with the faces more nearly confluent; basal trans-carina traceable throughout in most species (occasionally almost absent), weak and irregular to sharp throughout, gently or (more often) strongly swept forward to its narrow to broad, usually straight median abscissa which runs close to basal margin of propodeum; apical trans-carina sometimes almost as strong as basal but usually much weaker or absent, thrust well forward on median abscissa but remaining far from basal trans-carina (closer in some males); cristae low subcuneate to strongly projecting ligulate; area basalis usually small, tetragonal, with sides strongly convergent rearward and about as long as wide or in some species broader than long with the sides weakly oblique; areola vaguely hexagonal, usually about as long as wide but sometimes longer or shorter. First gastric segment without a baso-lateral excrescence or at most with a weak flange; female postpetiole 1.2-1.9 as wide at apex as long from spiracle to apex and male postpetiole 0.6-1.1 as wide as long; ventro-lateral and dorso-lateral carinae usually traceable throughout and often sharp, vertical wrinkles on sides of petiole between carinae; dorsal carinae variably distinct on apex of petiole and on basal 0.5 of postpetiole, where they define a slightly to definitely raised median area. Second gastric tergite in female more or less smooth and shining (usually conspicuously relucent) and with delicate to well developed micro-reticulation, its punctures abundant, small to minute, and emitting short to moderately long setae which are usually shorter than the length of their interspaces (rarely at least in part a little overlapping); in male with generally stronger micro-reticulation and with longer setae which often (by no means always) consistently equal or exceed their interspaces. Gaster in female stout to moderately elongate fusiform, in male slender fusiform and cylindroid, sometimes a little compressed apicad. Ovipositor with sheathed portion 0.30-0.80 as long as fore wing; straight or slightly decurved, moderately stout to unusually robust, more or less compressed; nodus distinct but often low, notch defined or sometimes absent; dorsal valve between notch and apex with taper slightly concave or sinuate, straight or convex; ventral valve on tip with fine to very strong oblique to almost vertical ridges; tip 0.18-0.38 as high at notch or nodal summit as long from this point to apex.

SPECIES INCLUDED. In addition to the type species, Neocryptopteryx includes the following described species, all of which are NEW COMBINATIONS under this name: Cryptopteryx oeceticola Blanchard (1941), Trachysphyrus hypodyneri Porter (1967a), Trachysphyrus sphaera Porter (1967a), Trachysphyrus oedipous Porter (1967a), Cryptus albomarginatus Taschenberg (1876), Trachysphyrus zaceras Porter (1967a), Trachysphyrus uspallatae Porter (1967a), Trachysphyrus ocris Porter (1967a), Trachysphyrus brasson Porter (1967a), Trachysphyrus incarum Porter (1967a), and Cosmiocryptus leucetrum Porter (1985b).

RELATIONSHIPS. Neocryptopteryx closely resembles Chilecryptus but, as detailed in the account of that genus, differs in structure of the pronotal collar, in its more coarsely sculptured mesoscutum, stouter postpetiole, and in its less densely setose 2nd gastric tergite.

GEOGRAPHIC DISTRIBUTION. Neocryptopteryx is known from the Peruvian Coastal Desert (N. leucetrum) and Puna (N. incarum); from subtropical wet forests in southern Brasil, northeast and northwest Argentina (N. blanchardi, N. brasson); from subtropical forests, Chaco, Subandino, and Prepuna localities in northern and northwest Argentina (N. albomarginatus, *N. ocris*); in the Southern Argentine Subandino (*N. uspallatae*, *N. zaceras*); and from Neantarctic Chile (*N. hypodyneri*, *N. metriurus*, *N. oedipous*, and *N. sphaera*).

KEY TO THE CHILEAN SPECIES OF *NEOCRYPTOPTERYX*

FEMALES

1. Front tibia scarcely inflated; propodeal carinae notably high and sharp, including irregular but usually strong lateral longitudinal carinae; propodeal surface distad of basal trans-carina coarsely reticulately wrinkled; ovipositor tip a little slender, 0.20-0.28 as high at notch as long from notch to apex, nodus usually comparatively high, profile of dorsal valve on tip direct to faintly concave; fore and mid tarsi often white marked . . . . 1. *Neocryptopteryx metriurus* (Spinola)

1.' Front tibia moderately to strongly inflated; propodeal carinae finer and lower, lateral longitudinal carinae weaker and blunter, surface of propodeum more finely wrinkled; ovipositor tip stouter, 0.26-0.35 as high at notch as long from notch to apex, nodus usually lower than described above, dorsal valve on tip with a direct to convex taper; fore and mid tarsi never marked with white 2

2. Occipital carina almost uniformly low throughout; 1st flagellomere 7.0-7.2 as long as deep at apex; malar space 0.80-0.90 as long as basal width of mandible; sheathed portion of ovipositor 0.30-0.50 as long as fore wing 3

2.' Occipital carina gradually raised ventrad until it becomes a conspicuous flange toward junction with hypostomal carina; 1st flagellomere 6.0-6.6 as long as deep at apex; malar space 0.70-0.80 as long as basal width of mandible; sheathed portion of ovipositor 0.50-0.60 as long as fore wing . . . . 2. *Neocryptopteryx hypodyneri* (Porter)

3. Sheathed portion of ovipositor 0.30-0.40 as long as fore wing; temple 0.3-0.4 as long as eye in dorsal view, definitely receding and a little rounded-off; epomia strong and sharp in scrobe; speculum swollen, smooth and shining . . . . .3. *Neocryptopteryx oedipus* (Porter)

3.' Sheathed portion of ovipositor 0.50 as long as fore wing; temple 0.5 as long as eye in dorsal view, moderately receding and more strongly rounded-off; epomia delicate, not sharply distinguishable from other wrinkles in scrobe; speculum weakly swollen and largely invaded by strong punctures and wrinkles . . . . 4. *Neocryptopteryx sphaera* (Porter)

MALES

(Male of *N. sphaera* unknown)

1. Occipital carina a prominently raised flange, especially toward junction with the high and somewhat scoop-like hypostomal carina . . . . 2. *Neocryptopteryx hypodyneri* (Porter)

1.' Occipital carina throughout sharp and low or at most a weakly raised flange 2

2. Fore and mid legs with white markings on coxae, trochanters, and tarsi; malar space 0.60-0.70 as long as basal width of mandible; temple 0.70-0.80 as long as eye in dorsal view, moderately receding; postpetiole 0.70 as wide apically as long from spiracle to apex; 2nd gastric tergite's setae mostly equal or surpass the length of their interspaces . . . . 1. *Neocryptopteryx metriurus* (Spinola)

2.' No white on fore and mid legs; malar space 0.80 as long as basal width of mandible; temple 0.50 as long as eye in dorsal view and rather strongly receding; postpetiole 0.90 as wide apically as long from spiracle to apex; 2nd gastric tergite with setae largely shorter than the length of their interspaces, only sporadically equalling interspaces . . . . 3. *Neocryptopteryx oedipus* (Porter)

1. *Neocryptopteryx metriurus* (Spinola), new combination

(Fig. 141, 194)

Ichneumon (*Cryptus*) *metriurus* Spinola, 1851. *In* Gay: Historia física y política de Chile. Zoología 6: 486. Type f: Chile, Coquimbo (Turin).

Cryptopteryx oeceticola Blanchard, 1941. Rev. Soc. Ent. Argentina 11: 6. Type f: Argentina, Estación Forestal de Anchorena en Río Negro (Castelar).

Trachysphyrus oeceticola Porter, 1967a. Mem. Amer. Ent. Inst. 10: 153-6.

Trachysphyrus metriurus Porter, 1975. Revta. Chilena de Ent. 9: 169.

NEW SPECIMENS EXAMINED. 1 f and 1 m: CHILE, Cautín Province, Pucón (Península en Lago Villarrica), 25-30-XI-1984, C. Porter, T. O'Neill; Magallanes Province, Parque Chabunco ca. Punta Arenas, 22-II-1986, C. Porter, T. O'Neill (Porter).

FIELD NOTES. The specimen from Punta Arenas was collected from *Baccharis* in a clearing sheltered from the wind by stands of *Nothofagus pumilio*.

This species is recorded from near Santiago in the Central Valley of Chile south through the Valdivian Forests and into the Magallanes

Interoceanic Region. It has also been collected from Neantarctic Argentina at San Carlos de Bariloche in Río Negro Province. *Neocryptopteryx metriurus* occupies an altitudinal span of sealevel to 1000 m, which probably explains its absence in Argentina north of 40° South Latitude, where the Andes begin to form a continuous barrier for east-west dispersal, with an average altitude of 3000-5000 m.

HOSTS. The common psychid moth (bicho del cesto), *Oeceticus kirbyi*, is the only known host for *N. metriurus* (Blanchard 1941).

2. *Neocryptopteryx hypodyneri* (Porter), new combination.

(Fig. 139)

Trachysphyrus hypodyneri Porter, 1967a. Mem. Amer. Ent. Inst. 10: 156-60. Type f: Chile, Santiago Province, El Canelo (Cambridge).

FIELD NOTES. *Neocryptopteryx hypodyneri* extends from sealevel to 2400 m and in Chile ranges from Valparaíso and Santiago to Cautín Province. There is 1 record from Neuquén Province near the Chilean border in Neantarctic Argentina. This species appears in most Chilean habitats from river valleys and ravines in the Central Valley and south Coquimban Desert to the Valdivian Forests and the Valdivian Cordillera.

HOSTS. This species has been reared from the mud nest of *Hypodynerus porteri*, a eumenid wasp (Porter 1967: 159).

3. *Neocryptopteryx oedipus* (Porter), new combination

(Fig. 140)

Trachysphyrus oedipus Porter, 1967a. Mem. Amer. Ent. Inst. 10: 161-3. Type f: Chile, Santiago Province, El Canelo (Townes).

FIELD NOTES. This rare species has been taken in central Neantarctic Chile from Santiago south to Concepción. Toward the north it seems to be limited to well watered and wooded ravines, and on the south it enters Northern Valdivian Forest.

4. *Neocryptopteryx sphaera* (Porter), new combination

Trachysphyrus sphaera Porter, 1967a. Mem. Amer. Ent. Inst. 10: 160-1. Type f: Aconcagua, Hda. Saladillo, Piscicultura (Ottawa).

FIELD NOTES. *Neocryptopteryx sphaera* remains known only from a single locality in Andean foothills of Aconcagua Province between Portillo and Los Andes.

20. Genus *ARAUCACIS* Porter, new genus

Type species: *Trachysphyrus leptaulas* Porter, 1967a.

Fore wing 6.0-8.0 mm long. Coloration with head, mesosoma, and gaster black with sparse (female) to extensive (male) white markings; legs black with brown or reddish staining and in male also with prominent white markings; flagellum black with a white band; wings in female infumate to weakly darkened, in male weakly infumate to hyaline. Flagellum in female short and becoming subtly but definitely swollen in apical 0.3, although basically filiform, its 1st segment 3.7-5.1 as long as deep at apex; in male very long and setaceous with sharp and linear tyloids on segments 12 (13)-17, the more proximal tyloids often nearly percurrent and following the longitudinal axes of their segments, the tyloids on segments 15-17 short, a little obliquely oriented and set off by a dorso-basal excavation on each segment, the 1st flagellar segment 3.2-3.9 as long as deep at apex. Front deeply concave and polished on lower 0.5, practically flat and mat with finely granular puncto-reticulation on upper 0.5. Face about 1.6 as wide between eyes as high from top of anterior tentorial pit to bottom of antennal sockets. Clypeus rather large; that of female in profile weakly to moderately raised symmetric to asymmetric sybpyramidal or simply convex with the faces unusually well differentiated so that the clypeal disc appears bipartite in front view, that of male much less elevated and not clearly bipartite when viewed anteriorly; apical margin in both sexes narrowly sharp, straight to strongly convex, and with corners slightly reflexed. Malar space 0.60-0.90 as long as basal width of mandible. Mandible broad and tapered toward apex, its teeth subequal, about 2.2 as long as wide across base of teeth. Occipital carina sharp and narrow throughout or considerably raised ventrad, joining the low or high and scoop-shaped hypostomal carina well above base of mandible. Pronotum on humeral margin with a percurrent, broad, shallow, weakly foveolate groove; epomia strong in scrobe, sometimes with a swelling above its upper end; lower front margin of pronotum rounded, its tooth obsolete or absent; upper front margin and collar as described for Itamuton. Mesoscutum with notauli reaching 0.2-0.5 its length, fine, weakly to sharply impressed; surface smooth and shining with very dense, small, sharp, subadjacent to adjacent punctures and sometimes also with faint micro-reticulation. Mesopleuron with subalarum horizontal and narrowly crescentic but only carinate apicad; speculum mostly smooth and polished with subajacent pit and groove as in Itamuton; prepectal carina sharp, inclivous, becoming gently sinuate above and reaching or approaching subalarum; no excrescence on prepectus below; disc (at least in female) with fine to somewhat coarse reticulate wrinkling on lower 0.5 and on upper 0.5 with more regular and longitudinally to obliquely biased wrinkling, upper front quadrant (at least in female) with a slightly swollen and smoother area that is minutely and densely punctate; sternaulus practically straight, strong on basal 0.6 but obsolete apicad. Hind coxa with a broad and polished but shallow groove extending ventrad from its attachment. Female fore tibia stout and sometimes a little inflated. Female hind metatarsus with strong outstanding bristles arranged somewhat irregularly in 4 rows among long and dense recumbant setae. Female 4th tarsomeres with a moderately deep and V-shaped apical emargination. Metanotum nearly flat, sparsely setose, its apical face abruptly declivous, its baso-lateral fossae broad, deep and narrowly separated on meson (more widely separated in male). Groove between metanotum and propodeum with submedian tubercles of metanotal face sharp but tiny and of propodeal face very broad but obsolete (stronger and sharp in male); sublateral tubercles strong on metanotal face but obsolete on propodeal face. Wing venation: areolet large, intercubiti very convergent dorsad, 2nd abscissa of radius 0.3-0.6 as long as 1st intercubitus; 2nd recurrent outbulged above, gently reclivous below; discocubitus weakly angled, sometimes with a short ramellus; mediella in female weakly arched and in male rather strongly arched; axillus very close to anal margin of hind wing, from which it is removed by no more and often less than its own width. Propodeum with spiracle 1.5-1.8 as long as wide; in female a little elongate but high with basal face sloping rearward and the subequal apical face sharply discrete and nearly vertical, in male with profile much longer and lower with little differentiation of the faces; basal trans-carina percurrent, sharp or often irregular (especially medially where it is curved far forward to end in a rather short, straight to gently curved mesal abscissa); apical trans-carina stronger than the basal carina, straight or curved on its mesal abscissa (which extends well anteriad but remains distant from the basal trans-carina); female cristae robustly and broadly low subcuneate and distinctly projecting, male cristae less prominent; area basalis short and much broader than long; areola hexagonal, in female 1.3-1.5 as long as broad and in male even longer (areola weakly defined laterally because median longitudinal carinae often are weak or obsolete). First gastric segment without a baso-lateral expansion on petiole; postpetiole in female expanded, 1.3-1.6 as wide apically as long from spiracle to apex and in male nearly parallel-sided and 0.6-0.8 as long as wide; ventro-lateral carina in female traceable throughout and sometimes strong on postpetiole; dorso-lateral carina in female becoming sharp on apex of petiole and on postpetiole; dorsal carinae of female often well developed and even sharp on apex of petiole and base of postpetiole, where they enclose a slightly elevated median field; longitudinal carinae considerably weaker but more or less traceable in male. Second gastric tergite in female dull silky-shining with fine but distinct micro-reticulation and abundant, tiny, very superficial punctures which emit short setae that mostly approach, equal, or briefly surpass the length of their interspaces; in male more granularly mat than in female and with longer and more extensively overlapping setae. Gaster in female moderately elongate fusiform, in male weakly fusiform to parallel-sided. Ovipositor with sheathed portion 0.36-0.40 as long as fore wing; straight, rather slender, strongly compressed; nodus distinct and with a small notch; dorsal valve on tip with a gently convex taper between notch and apex; tip 0.22-0.28 as high at notch as long from notch to apex.

GENERIC NAME. From the Neo-Latin root arauc-, "pertaining to the Nothofagus biome in temperate South Ameica," and the Greek acis, "point," a term frequently used in composition of generic names for small species of Neantarctic and Neotropic Ischnina.

SPECIES INCLUDED. Trachysphyrus melanthes Porter and T. leptaulax Porter (1967a).

RELATIONSHIPS. In such features as its dorsally much narrowed areolet, reclivous and dorsally outbulged 2nd recurrent vein, and well developed dorsal carinae on at least the female postpetiole and apical petiole, this genus seems related to Itamuton, of which it may be an endemically Chilean offshoot. The following characters separate Araucacis from Itamuton and other close relatives: female flagellum short and a little swollen toward apex; female clypeus bipartite in front view, with its basal and apical faces unusually (but not carinately) discrete; malar space 0.60-0.90 as long as basal width of mandible; humeral margin of pronotum percurrently grooved; notauli reaching only 0.20-0.50 the length of mesoscutum; complex mesopleural sculpture that differs from upper to lower 0.5 of sclerite; nearly straight sternaulus; many details of propodeal areolation (e.g., apical trans-carina much stronger than and far from basal, areola thus longer than wide in position); much more densely setose female 2nd gastric tergite; and shorter, more strongly compressed ovipositor.

GEOGRAPHIC DISTRIBUTION This small genus seems restricted to central and south-central Chile from Santiago to Cautín Province. Doubtless it enters southwest Argentina toward the southern extreme of its range.

KEY TO THE SPECIES OF ARAUCACIS

1. Occipital carina becoming high and flange-like ventrad, hypostomal carina high and scoop-shaped; female 1st flagellomere 4.6-5.1 as long as deep at apex; notaulus reaching about 0.5 the length of mesoscutum; male propodeal cristae medium sized to large, bluntish cuneate; male wings somewhat infumate . . . . 1. Araucacis melanthes (Porter)

1.' Occipital carina low throughout or, at most, slightly raised below, hypostomal carina less strongly raised than described above; female 1st flagellomere 3.7 as long as deep at apex; notaulus reaching 0.3 or a little more the length of mesoscutum; male propodeal cristae usually rather small and low tubercular or crescentic; male wings practically hyaline . . . . 2. Araucacis leptaulax (Porter)

1. Araucacis melanthes (Porter), new combination

(Fig. 137, 171)

Trachysphyrus melanthes Porter, 1967a. Mem. Amer. Ent. Inst. 10: 142-5.
Type f: Chile, Santiago Province, El Canelo (Townes).

FIELD NOTES. This species has been collected in Chile between Santiago and Ñuble Provinces in Central Valley and Northern Valdivian Forest habitats.

2. Araucacis leptaulax (Porter), new combination

(Fig. 138)

Trachysphyrus leptaulax Porter, 1967a. Mem. Amer. Ent. Inst. 10: 145-7. Type f. Chile, Santiago Province, El Canelo (Ottawa).

NEW SPECIMENS EXAMINED. 1 f and 3 m: CHILE, Cautín Province, Comuna de Pucón, ca. Termas de Palguín, 27-XI-1984, 5-9-XII-1984, C. Porter, T. O'Neill (Porter).

FIELD NOTES. Araucacis leptaulax inhabits relict sclerophyll woods in well-watered precordilleran valleys of the Santiago area and southward enters the Valdivian Cordillera Biome and probably attains the Valdivian Forest. At Termas de Palguín, the species was taken only a few km from the

Argentine border and almost certainly reaches Neantarctic forest habitats in Neuquén and Río Negro Provinces of Argentina.

21. Genus OECETIPLEX Porter, new genus

Type species: Cryptus borsani Blanchard, 1941.

Oecetiplex seems closely related to Itamuton but shows the following distinctive features: Coloration with flagellum entirely dark, head, mesosoma and gaster profusely marked with white, legs mostly orange and wings hyaline. Clypeus in profile high and with contour convex or bluntly pyramidal, its apical margin gently to strongly convex and often obscurely bilobed. Malar space in female 0.80-1.0 as long as basal width of mandible. Occipital carina a sharp and narrow flange that becomes weaker or almost effaced near hypostomal carina. Pronotum with humeral margin somewhat swollen and without a distinct groove; epomia strong in scrobe and continued dorsad where it ends in a rather strong swelling and is often faintly traceable mesad so as to set off a weakly differentiated swollen area; lower front margin with a small, sharp tooth near mid height. Mesoscutum with notauli weak and shallow to moderately sharp, traceable a little more than 0.5 the length of mesoscutum; surface shining with gross and deep subadjacent (or sometimes more widely separated on lateral lobes) to confluent punctures. Mesopleuron with disc coarsely reticulately wrinkled. Wing venation: areolet large and often rather broad, intercubiti weakly to moderately convergent above, 2nd abscissa of radius 0.8-1.0 as long as 1st intercubitus; discocubitus rather strongly angled; setae of wing membrane often unusually sparse. Propodeum with cristae rather small and narrow but strongly projecting ligulate and with its surface coarsely wrinkled so that both basal and apical trans-carinae may be partially effaced. Ovipositor with sheathed portion 0.40-0.50 as long as fore wing; stout, weakly compressed, slightly decurved; nodus rather low and with a small notch.

GENERIC NAME. From Oeceticus, the genus of psychid moths parasitized by this ichneumonid, and plex-, a Greek root suggesting "to strike or to hit."

SPECIES INCLUDED. Cryptus borsani Blanchard.

RELATIONSHIPS. Oecetiplex appears related to Itamuton, in view of such characters as its filiform and slender female flagellum, partly smooth and shining mesoscutal surface, uniformly sculptured mesopleural disc, reclivous and dorsally outbulged 2nd recurrent vein, axillus close to anal margin of hind wing, both trans-carinae of propodeum (to the extent visible) thrust far forward medially, so that the basal carina comes close to the front margin of propodeum and the apical trans-carina is close enough to the basal that the areola is as broad as long or (usually) much broader, dorsal carinae distinct and sometimes sharp toward apex of petiole and on base of postpetiole, and 2nd gastric tergite with widely scattered setae.

GEOGRAPHIC DISTRIBUTION. Oecetiplex has been collected at scattered points in the Chilean Coquimban Desert and Magallanes Interoceanic Region, as well as in the Patagonian Steppe and Southern Subandean Desert of Argentina.

1. Oecetiplex borsani (Blanchard), new combination

(Fig. 142, 167, 200)

Cryptus borsani Blanchard, 1941. Rev. Soc. Ent. Argentina 11: 8.
Type f: Argentina, Mendoza (Castelar).

Trachysphyrus borsani Porter, 1967a. Mem. Amer. Ent. Inst. 10: 126-9.

DISCUSSION. Although a parasite of the abundant psychid moth genus Oeceticus, this species has been collected only rarely. Its anomalously far-flung geographic range, along with prominent chromatic and structural differences from one population to another, make it likely that O. borsani will be divided into several species when more specimens come to hand, permitting analysis of individual and geographic variation.

22. Genus HYPSANACIS Porter, new genus

Type species: Trachysphyrus paradeisus Porter, 1967a.

Fore wing 5.2-7.4 mm long. Coloration: head and mesosoma black with some white markings that include a spot in each front corner of scutellum; gaster orange (with or without black areas) or entirely black in some males; flagellum black, with a white band in some females but never in males; legs black or orange and black and often with white markings; wings moderately infuscate (in some females) to only slightly darkened or hyaline. Flagellum in female moderately long to very long, often longer than body, on apical half a little more robust than basad and gently flattened below toward apex, but essentially filiform, its 1st segment 5.0-5.7 as long as deep at apex; in male setaceous, rather robust, varying from somewhat shorter to a little longer than body, with linear, sharp, and longitudinally oriented tyloids on as many as segments 12-18 or as few as 13-15, its 1st segment 3.5-4.2 as long as deep at apex. Front weakly concave, shining with transverse wrinkles on lower 0.3-0.5, duller or mat and more or less granularly puncto-reticulate or reticulately wrinkled with some transverse bias on its upper 0.5-0.7. Face 1.4-1.7 as wide as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus moderately large; in profile moderately elevated to high, varying from strongly and symmetrically convex to bluntly and often asymmetrically subpyramidal; its apical margin nearly truncate to gently convex and without a median tubercle, the whole marginal strip unusually sharp, impressed to reflexed and with the corners a little reflexed. Mandible stout, evenly and strongly tapered from base to apex, 2.5-2.6 as long as wide across base of teeth; the teeth subequal in size. Malar space in female 1.0-1.3 as long as basal width of mandible, in male 0.8-1.0 as long. Occipital carina fine and sharp, joining the somewhat more elevated hypostomal carina below. Pronotum with humeral margin weakly to moderately swollen and with a narrow, shallow, delicately foveolate, percurrent groove; epomia often almost straight, sharp, long (prolonged well below scrobe), and sometimes gently traceable mesad above scrobe but without a swelling above its dorsal end; lower front pronotal margin broadly angled and often with a strong but inconspicuous tooth near mid-height; upper margin sublaterally and across front of collar with a weakly elevated, translucent carina, behind which the cervical dorsum is transversely and rather briefly swollen with the swelling set off by a fine groove and row of foveae apicad. Mesoscutum with notauli fine and narrow, sometimes faint, traceable 0.5-0.7 its length; surface with dense, fine to rather coarse, mat to dully shining, reticulate wrinkling and sometimes with areas of finer and more opaque micro-sculpture mesad on central lobe and less conspicuously toward mid-line of lateral lobes. Mesopleuron: subalarum horizontal, sometimes swollen or sometimes modified as a long and sharp crescentic lamella; speculum shining but usually much invaded by punctures and wrinkles, with a tiny pit at its anterio-ventral corner that connects with mesopleural suture by a fine declivous groove (these characters often hard to see among other surface sculpture); prepectal carina nearly vertical to moderately inclivous, reaching about upper 0.5-0.6 of mesopleuron, not closely approaching front margin of its sclerite; no excrescence on lower prepectus; disc almost uniformly with complex and quite strong reticulate wrinkling; sternaulus impressed on basal 0.6 of mesopleuron, upcurved, abruptly obsolete on apical 0.4 and not approaching base of mid coxa. Wing venation: areolet large and moderately high, the intercubiti strongly convergent above, 2nd abscissa of radius 0.5-1.0 as long as 1st intercubitus, areolet 1.0 as high as wide; 2nd recurrent either a little reclivous and outbulged on upper 0.5 or vertical to weakly inclivous and variably curved on upper 0.5; discocubitus broadly angled with ramellus absent, vestigial, or rather long; mediella gently to strongly arched; axillus close to anal margin of hind wing. Hind coxa beneath its attachment with a sharp but short groove, that is hard to see without breaking leg. Female fore tibia not inflated. Metanotum nearly flat to strongly convex and projecting, with sparse to dense setae, its basal fossae large to small and separated by more to much less than the width of 1 fossa. Groove between metanotum and propodeum deep and narrow in female, deep but broader and more open laterad in male, its submedian prominences tubercular to conical and well developed on both metanotal and propodeal face of groove, the sublateral excrescence small but distinct on metanotal face but obsolete on propodeum. Propodeum: spiracle 1.2-1.6 as long as wide; in female short and high with basal and apical faces subequal and sharply discrete, the basal face moderately to strongly sloping rearward, the apical face very steep to vertical; basal trans-carina percurrent and mostly sharp but in places weak and irregular, sometimes forming low sublateral crests, very weakly to rather strongly thrust forward to its median abscissa, which may be gently to strongly curved or nearly transverse but which remains distant from base of propodeum by about 0.3-0.4 the length of the basal face; apical trans-carina traceable but weaker and more irregular than basal carina, conspicuously thrust forward on its broad median segment; cristae prominent and projecting, varying from bluntly subcuneate to sharply spiniform and hypertrophied; areola in position about 0.9-2.0 as wide as long and hexagonal in shape, the median longitudinal carinae faint or absent; lateral longitudinal carinae irregularly traceable, sometimes becoming strong between transverse carinae and onto base of cristae; in male varying from short and high to rather long and sloping, with basal trans-carina often higher and more regular than in female and with the apical transcarina often correspondingly higher but still irregular; cristae usually as prominent in male as in female. First gastric segment: without a baso-lateral excrescence on petiole;

female postpetiole 1.1-1.3 as wide apically as long from spiracle to apex, male postpetiole 0.5-0.8 as wide as long; the longitudinal carinae variably detectable in both sexes; ventro-lateral carina usually detectable throughout, sharp apicad on petiole and on postpetiole; dorso-lateral carina traceable to sharp on postpetiole but progressively weaker basad on petiole; dorsal carinae usually weak and often absent but sometimes well defined or even sharp toward apex of petiole and on postpetiole; sides of petiole between ventro-lateral and dorso-lateral carinae nearly smooth, shining, and with faint and irregular or sometimes oblique rugulosities but without vertical wrinkles. Second gastric tergite shining to mat with somewhat granular micro-reticulation and with numerous but sometimes widely scattered, tiny to medium sized, very superficial and inconspicuous punctures that emit setae which vary from short and widely spaced in females to long and well spaced but usually more or less equalling or exceeding the length of their interspaces in males. Gaster in female moderately stout fusiform, in male more nearly parallel sided and more elongate. Ovipositor with sheathed portion 0.30 as long as fore wing; straight, quite slender, strongly compressed; nodus distinct but low, with or without a notch; dorsal valve between nodus and apex with a long, faintly sinuate, slightly concave, or straight taper; ventral valve on tip with fine, well spaced, inclivously oblique ridges; tip 0.16-0.21 as high at summit of nodus or notch as long from these to apex.

GENERIC NAME. From the Greek noun hypsus, "height," "summit," and the generic name Anacis, used for a large South American and Australian genus to which Hypsanacis may be distantly related.

SPECIES INCLUDED. Trachysphyrus paradeisus Porter (1967a), T. hoplites Porter (1967c), and Hypsanacis socoromae Porter, new species.

RELATIONSHIPS. The dorsally narrowed areolet and often reclivous as well as dorsally outbulged 2nd recurrent vein render Hypsanacis superficially similar to the largely sympatric Itamuton. This resemblance becomes especially pronounced in males of the Argentine type species, H. paradeisus (Porter 1967). On the other hand, this genus has many features in common with Anacis and Cryptopteryx (in east Andean cloud forests from Colombia to Bolivia). Moreover, many of its diagnostic characters (sharp and reflexed clypeal margin, hypertrophy of the propodean apophyses, arching of submediella) are subtly developed in the presumably more conservative northwest Argentine and north Chilean species, but veritably exaggerated in species from the northern Andes (e.g., the Ecuadorian H. hoplites). For the present, I leave Hypsanacis in proximity of Itamuton, but suggest that future studies of the extra-Chilean Mesostenini in South America and of the Australian mesostenines now placed in Anacis may oblige reassessment of this opinion.

Hypsanacis differs from other South American ischnine genera by reason of the following characters and character trends: gaster in female solid orange; female flagellum often longer than body, basically filiform but a little robust on apical 0.5; male flagellum with tyloids on as many as 8 to as few as 3 segments; front weakly concave; clypeal margin sharply discrete and impressed or slightly reflexed across entire apex; humeral margin of pronotum faintly and narrowly grooved; subalarum often sharp and crescentically cariniform; absence of an excrescence on lower prepectus;

uniformly reticulo-rugose mesopleural disc; sharp but very short groove beneath coxal attachment; submedian tubercles well developed on both faces of metanotal-propodeal groove; intercubiti strongly and evenly convergent above; mediella gently to strongly arched; short propodeal spiracle and large to gigantic propodeal cristae; weakly expanded to parallel-sided female postpetiole; sparse setae on female 2nd gastric tergite; and short, much compressed ovipositor.

GEOGRAPHIC DISTRIBUTION. Hypsanacis ranges from Ecuador to northwest Argentina and northernmost Chile along the eastern and western Andean slopes between 2000 and 3200 m elevation.

KEY TO THE SPECIES OF HYPSANACIS

(Female of H. socoromae unknown)

1. Propodeal cristae in both sexes conspicuously projecting sharp ligulate or thorn-like, more than 0.5 as long as basal face of propodeum; ovipositor tip with a notch at summit of nodus; mesoscutum with distinct notauli, mat and rather finely puncto-reticulate; subalarum a sharply carinate, crescentic lamella; malar space 0.8-1.2 as long as basal width of mandible; gaster wholly or extensively orange . . . . 2. H. hoplites (Porter)

1.' Propodeal cristae well defined but only a little projecting short ligulate or subcuneate, much less than 0.5 the length of basal face of propodeum; ovipositor (female of H. socoromae unknown) without a notch at summit of nodus; mesoscutum, subalarum, and malar space variable; male gaster sometimes wholly black 2

2. Gaster wholly orange; hind tarsus black, without white markings; temple 0.5 as long as eye in dorsal view; mesoscutum with notauli unusually faint and traceable scarcely 0.4 its length, its surface shining with strong but fine reticulate wrinkling as well as with areas of duller integument and finer sculpture mesad on lobes; subalarum a thin and sharply carinate lamella; second gastric tergite with long setae some of which exceed but many of which fall short of the length of their interspaces . . . . 3. H. socoromae n. sp.

2.' Gaster of male wholly black; white on male hind tibia; male temple 0.7 as long as eye; the mesoscutum with fine but conspicuous notauli extending 0.5-0.7 its length, its surface duller and with more granular wrinkling and intercalated delicate aciculo-punctation than described above; subalarum rather thick and swollen; second gastric tergite with long and mostly overlapping setae . . . . 1. H. paradeisus (Porter)

1. Hypsanacis paradeisus (Porter), new combination

(Fig. 144)

Trachysphyrus paradeisus Porter, 1967. Mem. Amer. Ent. Inst. 10: 137-40. Type f: ARGENTINA, Tucumán Province, Tafí del Valle, 4-I-1966, H. and M. Townes (Townes).

Chromocryptus paradeisus Townes, 1969. Mem. Amer. Ent. Inst. 12: 180.

FIELD NOTES. This species is known only from 2000 m in the pre-Andean Cordillera of northwest Argentina. Its habitat includes alder woods (Alnus jorullensis) and grasslands transitional to the higher and more xeric Puna Biome. These regions have a rather long (September to May), moist warm season (18°-22° C) and a dry season with nightly frosts but much sun and temperatures up to 16°-18° C on cloudless days.

2. Hypsanacis hoplites (Porter), new combination

(Fig. 143,173)

Trachysphyrus hoplites Porter, 1967c. Psyche 74: 27-33. Type f: ECUADOR, Cerro Tinajillas, 3200 m, 18-21-III-1965, L. E. Peña (Townes).

NEW SPECIMENS EXAMINED. 1 f: ECUADOR, Pichincha, San Rafael ca. Quito, 2500 m, 6-10-IX-1975, L. Stange (Porter).

FIELD NOTES. Hypsanacis hoplites seems characteristic of the Páramo (Wet High Andean Grassland) and of areas transitional between the Páramo and tropical Cloud Forest.

3. Hypsanacis socoromae Porter, new species

FEMALE. Unknown.

MALE. Color: antenna black; head and mesosoma black with white on most of maxillary palpus (best developed on 2nd segment); on most of clypeus; on front orbit, broadest below; on hind orbit narrowly but with a broad extension across much of malar space behind; dully on apex of propleuron; broadly on short bar crossing meson of pronotal collar; narrowly (with a short median break) on dorsal margin of pronotum; minutely on subalarum medially; on tiny dot in each anterior angle of scutellum near end of prescutellar carina; gaster orange, paler on claspers which have some whitish staining; fore and mid coxae and trochanters black with white areas ventrally and ventro-anteriorly (white less extensive on mid leg); fore and mid trochantelli orange-brown; fore and mid femora as well as hind coxa, trochanters, and most of hind femur orange; hind femur blackish on apical 0.1-0.2; fore and mid tibiae and tarsi pallid orangish and whitish with apical 3 (fore leg) to 4 tarsomeres dusky; hind tibia and tarsus dull black; wings hyaline.

Length of fore wing: 5.6 mm. Flagellum: long (but shorter than body), a little heavy, weakly setaceous; with linear, longitudinal tyloids on segments 12-15 (those of 13 and 14 conspicuously the longest); and with 1st segment 3.9 as long as deep at apex. Clypeus: in profile moderately raised and bluntly asymmetric with apical face a little shorter and steeper than the basal face; apical margin broad, gently convex, impressed and sharp and with the corners reflexed. Malar space: 0.80 as long as basal width of mandible. Temple: 0.50 as long as eye in dorsal view; strongly receding. Mesoscutum: notauli vague, delicately traceable for about 0.4 the length of mesoscutum; surface shining to (centrad on lobes) dull, strongly but finely reticulately wrinkled with zones of minute punctation and aciculae mesad on lobes. Mesopleuron: subalarum modified to form a thin and sharp carinate lamella; speculum shining but much invaded by punctures and wrinkles; surface otherwise with almost uniform strong, moderately fine reticulate wrinkling. Metanotum: flat, without dense setation. Wing venation: areolet large, the intercubiti strongly convergent above, 2nd abscissa of radius 0.7 as long as 1st intercubitus; ramellus conspicuous; mediella gently arched. Propodeum: short and high with basal face steeply sloping and convex in profile; apical face 0.9 as long as basal, discrete, steeply declivous; spiracle 1.4 as long as wide; basal trans-carina sharp throughout, a little cristate sublaterally, very gently and gradually swept forward to its transverse and sharp median segment, throughout far removed from base of propodeum; apical trans-carina sharp but irregular, strongest on its transverse median segment, its lateral abscissae swept strongly forward, its cristae strong and conspicuously projecting short ligulate; median and lateral longitudinal carinae sharp but irregular; areola well defined, irregularly hexagonal, 1.3 as wide as long in position. First gastric segment: postpetiole 0.8 as wide apically as long from spiracle to apex; ventro-lateral carina traceable throughout, strongest on postpetiole; dorso-lateral carina vague on petiole but sharp on postpetiole; dorsal carinae undefined. Second gastric tergite: dully shining with delicate micro-reticulation and with numerous, smallish, very superficial punctures that emit long setae most of which barely equal or fall short of the length of their interspces and with little overlap.

TYPE MATERIAL. Holotype m: CHILE, Tarapacá Province, Socoromá, 3000 m, 24-VII-1977, C. Porter (Arica).

SPECIFIC NAME. Socoromae is a latinized genitive singular derived from the name of the type locality village.

RELATIONSHIPS. Hypsanacis socoromae shows close affinity to the Ecuadorian H. hoplites because of its narrowed, crescentic, and sharply carinate subalarum. It differs from H. hoplites in such features as its shorter temple, slightly shorter malar space, more strongly sculptured mesoscutum with obsolete notauli, only gently arched male mediella, much shorter and smaller propodeal cristae, in other propodeal details, and by the less setose male 2nd tergite.

FIELD NOTES. The unique type was swept from herbaceous growth along an irrigation ditch in the West Andean Puna of north Chile. Hillsides above the type locality are covered by xeric vegetation, including Trichocereus and other cacti, caesalpinoid leguminous shrubs, Baccharis (Compositae) and other high Andean flora. Below the canal appear terraced plots with alfalfa, oregano, potatoes, carnations, and similar crops.

23. Genus ITAMUTON Porter, new genus

Type species: Ichneumon (Cryptus) rufitibia Spinola, 1851.

Fore wing 3.0-8.8 mm long. Coloration with head and mesosoma black with sparse to profuse white markings; gaster black or black and red as well as often with white apical bands on some tergites; flagellum black, with or without a white band; legs black or sometimes mostly red to orange, often with some white marks (especially in males); wings blackish to hyaline. Body elongate to moderately robust in females, slender in males. Flagellum in female very long and uniformly slender, filiform, not flattened or enlarged toward apex and with 1st segment 4.8-7.7 as long as deep at apex; in male very long and setaceous with tyloids on segments 12-17, of which those on 12-15 are linear or bacilliform and oriented with the longitudinal axis of their segments, while those on 16 and 17 are sharp and somewhat oblique short ridges set off by dorso-basal excavations, and with 1st segment 3.2-4.5 as long as deep at apex. Front strongly excavated, smooth and polished on lower 0.4-0.6 but dorsad with fine transverse wrinkling that grades into puncto-reticulation near level of front ocellus, or sometimes shining but transversely wrinkled throughout. Face about 1.8 as wide between eyes as high from top of anterior tentorial pit to bottom of antennal sockets. Clypeus large; in profile moderately to strongly raised, about symmetrically convex or bluntly pyramidal; apical margin straight, gently to strongly convex or occasionally a little bilobed, its surface narrowly sharp with corners a little reflexed. Malar space 0.80-1.6 as long as basal width of mandible in females, in males 0.70-1.3 as long. Mandible broad and stout, evenly and strongly tapering to apex, its teeth subequal, 2.3 as long as wide across base of teeth. Occipital carina a sharp and low flange which joins the weakly to moderately raised hypostomal carina below. Pronotum with humeral margin moderately strongly and foveolately grooved throughout or sometimes with groove very weak. Epomia sharp (rarely weak) in scrobe and sometimes not prolonged dorsad but sometimes extending above scrobe and with a swelling above its dorsal end; and with its lower front margin weakly and bluntly subangulate; upper front margin sublaterally and across collar with a sharp and weakly to moderately raised carina that becomes lowest toward meson; dorso-median transverse swelling of collar quite inflated and set off behind by a depressed and foveolate transverse band. Mesoscutum with notauli weak and shallow to fine and sharp and reaching 0.60-0.80 the length of mesoscutum; surface shining to (more rarely) almost mat, with abundant subadjacent to confluent punctures of small to medium size as well as with an area of denser punctation and fine wrinkling apicad between notauli. Mesopleuron: subalarum horizontal and narrowly crescentic but only carinate toward the apex, speculum weakly to strongly polished, sometimes smooth throughout but often largely invaded by punctures and wrinkles, its lower margin with a pit that is connected to the mesopleural suture by a fine groove; prepectal carina sharp, gently inclivous, becoming obsolete on upper 0.4 and not reaching subalarum; no excrescence on lower prepectus; disc throughout finely reticulately wrinkled or reticulo-punctate; sternaulus broad, foveolate, gently sinuous, percurrent but becoming shallower (sometimes obsolete) on apical 0.4. Hind coxa with a prominent and polished groove descending from its attachment. Fore tibia in female moderately slender to (more often) stout but at most weakly inflated. Female 4th hind tarsomeres usually with a wide but shallow emargination on apex. Metanotum in profile convex, sparsely setose except apicad, its basolateral fossae large, strong, separated by about 0.5 the width of 1 fossa. Groove between metanotum and propodeum deep and narrow; submedian tubercles detectable both on propodeum at anterior end of median longitudinal carina and (more strongly so) on corresponding point of opposing metanotal face; sublateral tubercles very weak but detectable on propodeum but strong on corresponding part of metanotum (groove shallower and submedian and sublateral tubercles weaker in males); hind rim of metanotum prolonged laterally as a high ridge across summit of upper metapleuron. Wing venation: areolet large, intercubiti strongly to very strongly convergent above, 2nd abscissa of radius 0.4-0.8 as long as 1st intercubitus, areolet higher than wide; 2nd recurrent definitely reclivous, more or less outbulged or outangled above; discocubitus broadly and weakly to rather strongly angled, sometimes with a short and more rarely with a long ramellus; mediella of females straight to gently arched, of males gently to strongly arched; axillus very close to anal margin of hind wing. Propodeum with spiracle 1.4-2.8 as long as wide; in female short and high with the basal face more or less sloping apicad but sharply discrete from the subequal and vertically declivous apical face, in male with profile longer and lower so that the faces often form a single and almost uninterrupted slope; basal trans-carina usually traceable throughout, strong and sharp to largely weak and irregular, thrust far forward medially with the short and straight median segment often outstandingly sharp and high; apical trans-carina traceable throughout often weaker and more irregular than the basal carina, strongly thrust or curved forward medially so as to reach unusually close to the basal carina over its broad median segment; cristae distinct, subcuneate or subligulate; area basalis short and broad; areola usually at least as broad as to often much broader than long; without a baso-lateral excrescence on petiole; female postpetiole moderately to strongly expanded and 1.1-2.0 as wide apically as long from spiracle to apex and in male parallel sided to weakly expanded and 0.5-0.9 as wide apically as long; ventro-lateral carina in female fine and sharp throughout or sometimes weakening basad on petiole and in male usually weak on petiole; dorso-lateral carina in female fine and sharp on postpetiole but weaker (especially basad) on petiole, in male similar to female but generally less prominent; dorsal carina in female conspicuous, often sharp, on apex of petiole and base of postpetiole, where they enclose a slightly elevated median field, but otherwise obsolete or absent, very weak or wanting in male. Second gastric tergite: in female dully or silky-shining with fine but distinct or often well developed micro-reticulation as well as with small and superficial punctures that emit short, inconspicuous, scattered setae; in male dully shining to mat with micro-reticulation stronger than in female and the setae averaging longer, but still widely separated, or in many species, with the setae generally long and much overlapping. Gaster stout to elongate fusiform in female, weakly fusiform or parallel sided in male. Ovipositor with sheathed portion 0.40-0.80 as long as fore wing; straight or often a little upcurved, slender, compressed; nodus distinct, low to rather high, with a tiny notch; dorsal valve on tip with a straight, gently convex, or slightly concave taper between notch and apex; ventral valve with fine, inclivous ridges on tip; tip 0.20-0.28 as high at notch as long from notch to apex.

GENERIC NAME. From the Greek adjective itamos, "headlong, hasty," and the Greek participle uton, "wounding." This conflation is regarded as a masculine noun.

SPECIES INCLUDED. Trachysphyrus magallanes (Porter 1967a), Ichneumon (Cryptus) rufitibia (Spinola 1852), Trachysphyrus townesorum (Porter 1967a), Trachysphyrus leptus (Porter 1967a), and Cosmiocryptus occidens (Porter 1985b). All form NEW COMBINATIONS under Itamuton.

RELATIONSHIPS. Features of special significance for distinguishing Itamuton from other South American "trachysphyroids" include: the nearly filiform and very slender female flagellum; some details of tyloids and tyloidiferous segments on the male flagellum; the moderately to strongly raised, symmetrically convex or bluntly subpyramidal clypeus; the very long malar space of most species; the sharp but low occipital carina; the bluntly subangulate or minutely toothed lower front pronotum; and the sharp but only a little elevated carina on upper front margin of pronotum sublaterally and across collar; notauli traceable 0.6 or more the length of mesoscutum; often at least partially smooth and polished mesoscutal surface; speculum often largely invaded by punctures and wrinkles, its lower margin proximally with a pit that is connected by a fine groove to the mesopleural suture; uniformly reticulo-punctate mesopleural disc; prepectal carina fading out well below subalarum; unarmed lower prepectus; at most weakly inflated female fore tibia; areolet with intercubiti unusually steeply convergent dorsad; reclivous and dorsally outbulged 2nd recurrent; mediella in females straight to gently arched, sometimes strongly arched in males; axillus very close to anal margin of hind wing; propodeal spiracle 1.4-2.8 as long as wide; basal and apical trans-carinae of propodeum traceable throughout, often strong, the basal carina most often stronger than the apical, both carinae thrust far forward medially, the basal coming very close to propodeal base and the apical quite near to median segment of the basal trans-carina, so that the area-basalis is short and broad and the areola is at least as broad as long (usually much broader); cristae always distinct and sometimes strongly projecting; petiole without a baso-lateral expansion; female postpetiole 1.0-2.0 as wide apically as long from spiracle to apex; female with dorsal longitudinal carinae unusually conspicuous on apex of petiole and base of postpetiole; 2nd gastric tergite dully shining to mat with inconspicuous, tiny punctures that emit short and well separated setae in females and longer (sometimes much overlapping) setae in males; and usually compressed ovipositor with nodus and notch distinct on tip.

Most species of Itamuton closely resemble the Holarctic, Oriental, and Ethiopian genus Itamoplex. However, in Itamoplex the hind coxal base is not vertically grooved beneath its articulation, whereas species of Itamuton have a conspicuous, shining groove that reaches ventrad from the hind coxal attachment. This feature, first detected by Townes (1969), allows definitive separation of the two taxa but may not easily be visible in preserved material. Some additional features of apparent diagnostic value are summarized below.

(1). Itamoplex has the female flagellum percurrently filiform, whereas Itamuton has flagellomeres 3-6 subtly enlarged.

(2). In *Itamoplex* the most distal 2 tyloids follow the longitudinal axes of their segments and are not set off by discontinuities on the flagellar surface, whereas *Itamuton* has these tyloids oblique and emphasized by the presence of excavations on the surface of their flagellomeres.

(3). In *Itamoplex* both the hind face of the metanotum and the front face of the propodeum have a small but strong tubercle submedially in alignment with the median longitudinal carinae of the propodeum. In *Itamuton* the metanotum has a strong submedian tubercle but the corresponding propodeal tubercle is weaker.

(4). In *Itamoplex* the axillus, although much closer to the anal margin of the hind wing than to the submediella, is about 2 times its width removed from the anal margin. In *Itamuton* the axillus is scarcely 1X its width distant from the anal margin of the hind wing.

(5). In *Itamoplex* the propodeum has the apical trans-carina usually stronger than the basal carina, and the lateral abscissae of the basal carina swept strongly and convergently anteriad to the short median abscissa which is always far removed from the propodeal base, so that the areola and the area-basalis both are as long as wide or longer than wide in position. In *Itamuton* the basal trans-carina is usually stronger than the apical carina, the basal carina is arched forward so that it approaches the propodeal base medially and the apical carina similarly approaches the basal trans-carina in such a way that the area-basalis is much wider than long in position and the areola is at least as wide as long and often considerably wider.

Itamoplex and *Itamuton*, consequently, could be interpreted as northern (Laurasian) and southern (Gondwanian) vicariants of a single ancient lineage, being in this way analogous to the northern and southern components of such primitive plant taxa as the Fagaceae (*Nothofagus* in parts of Gondwanaland and the *Fagus*-*Castanea*-*Quercus* Complex in Laurasia).

GEOGRAPHIC DISTRIBUTION. *Itamuton* occurs through much of high Andean and Neantarctic South America. Perú has *I. townesorum* in the central Andes and the related *I. occidens* on its semi-desertic west Andean slopes. *Itamuton rufitibia* abounds in Neantarctic Chile from Aconcagua Province south to Chiloé Island, and extends across Patagonian Argentina to the Atlantic coast at Comodoro Rivadavia in Chubut Province. Farther south in Patagonia, the closely related *I. magallanes* replaces *I. rufitibia* in Tierra del Fuego and adjoining mainland areas of Chile and Argentina north to Puerto Natales, Chile. *Itamuton leptus* (whose generic placement will remain dubious until females are collected) has been cited from Chaco Serrano localities in Tucumán and Córdoba Provinces of central Argentina.

KEY TO THE CHILEAN SPECIES OF *ITAMUTON*

1. Flagellum without a white band; gaster with ground color usually red and with white apical bands on all tergites; malar space in female 1.4-1.6 and in male 1.1-1.3 as long as basal width of mandible; male 2nd gastric tergite with setae well separated; ovipositor gently upcurved . . . 1. *Itamuton magallanes* (Porter)

1.' Flagellum with a white band; gaster black with complete or nearly complete apical bands on tergites 3 or 4-7; malar space in female 0.80-0.90 and in male 0.70-0.80 as long as basal width of mandible; male 2nd gastric tergite with long and extensively overlapping setae . . . . 2. Itamuton rufitibia (Spinola)

1. Itamuton magallanes (Porter), new combination

(Fig. 145)

Trachysphyrus magallanes Porter, 1967a. Mem. Amer. Ent. Inst. 10: 129-31. Type f: Chile, Magallanes Province, Punta Arenas (Townes).

NEW SPECIMENS EXAMINED. 1 f: CHILE, Magallanes Province, Parque Chabunco ca. Punta Arenas, 22-II-1986, C. Porter, T. O'Neill (Porter).

FIELD NOTES. My specimen was collected on Baccharis in a large clearing surrounded and partially shielded from the wind by woods of Nothofagus pumilio.

Itamuton magallanes is a subantarctic endemic known only from Magallanes Province of Chile and adjoining regions of Argentina. It inhabits the Magallanes Interoceanic Region from 51°-53° South Latitude and occurs both on the mainland and on Tierra del Fuego.

2. Itamuton rufitibia (Spinola), new combination

(Fig. 5, 101-103, 105, 146, 166, 183)

Ichmeumon (Cryptus) rufitibia Spinola, 1851. In Gay: Historia física y política de Chile. Zoologia 6: 487. Type f: Chile, Coquimbo (Turin).

Trachysphyrus rufitibia Porter, 1967a. Mem. Amer. Ent. Inst. 10: 131-5.

NEW SPECIMENS EXAMINED. 5 f and 18 m: CHILE, Cautín Province, Pucón, Península en Lago Villarrica, 25-30-XI-1984, C. Porter, T. O'Neill, Llanquihue Province, Río Petrohue Camping, Parque Nacional Vincente Pérez Rosales, 2-III-1986, C. Porter, T. O'Neill (Porter).

FIELD NOTES. This abundant species most often may be collected in grassy or weedy areas at the wood's edge, along trails, or in forest clearings.

Itamuton rufitibia occurs from sealevel to about 1500 m altitude in all Chilean biomes from Aconcagua and Valparaíso Provinces at approximately 32° South Latitude to the Valdivian Forest of Chiloé Island at 43° South. It also reaches the Argentine Provinces of Neuquén and Río Negro, not only in Nothofagus forest close to the Chilean border but also in Patagonian Steppe across to the Atlantic coast.

24. Genus PHYCITIPLEX Porter, new genus

Type species: Ischnus doddi Cushman, 1927. Proc. U. S. Natl. Mus. 72(13): 5. Type f: Uruguay, Piriápolis (Washington).

Fore wing 3.8-6.4 mm long. Coloration: head and mesosoma black sometimes with more or less extensive red staining and with white markings that average sparse in female but more prominent in male and which always include a large part of the scutellum; gaster entirely black to extensively red (when present, red is best developed on tergites 1-3) and in female usually with a very broad white band on 4th tergite and sometimes with smaller white marks on tergites 5-6 but in known males with white apical bands on tergites 4-7 (that on 4th tergite the broadest); flagellum black or black and reddish brown, always with a white band; legs varying from mostly black with brownish staining to largely pale red or reddish brown with dusky suffusion and with some areas contrastingly black and others white; wings hyaline with slight brownish staining apicad or moderately infumate with some paler zones. Body in female elongate fusiform, in male slender and cylindroid. Flagellum in female about 0.8 as long as body, filiform, not flattened below toward apex, and with 1st segment 5.1-5.3 as long as deep at apex; in male approximately as long as body, setaceous and a little more robust than in female, with linear, sharp, and longitudinally oriented tyloids on segments 11 (faint), 12-14 (strong and nearly percurrent), and on 15 (strong but little more than 0.5 the length of its segment), as well as with the 1st segment 2.7-3.1 as long as deep at apex. Front weakly concave with fine transverse wrinkling on the shining lower 0.5 and dense punctures and puncto-reticulation on the more dully shining to mat upper 0.5 (shallower, duller, and more irregularly sculptured in male). Face 2.0-2.1 as wide as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus moderately large; in profile rather weakly (some males) to strongly elevated and more or less symmetrically subpyramidal to pyramidal in profile, the apical face often a little concave; apical margin truncate to gently convex, without a tooth or tubercle, with corners a little broadly but weakly reflexed. Mandible stout, broad at base and strongly, evenly tapered toward apex, 2.5-3.0 as long as wide across base of teeth; the teeth subequal in size. Malar space in female 0.70-0.80 as long. Occipital carina fine and sharp, joining the somewhat elevated hypostomal carina below. Pronotum with humeral margin in female weakly swollen and with a shallow, apically narrowed, finely foveolate humeral groove but in male with humeral margin more strongly swollen and its groove indicated irregularly by weak transverse foveae along inner margin of swelling; epomia in some species sharply developed only for a short distance in deepest part of scrobe but often sharp throughout scrobe and weakly extending a short distance dorsad and with a vague, broad swelling above the upper end; lower front pronotal margin broadly angled, forming a weak and blunt tooth or subdentiform projection at mid-height; upper margin sublaterally and across front of collar with a weakly elevated, sublaminate, translucent carina, behind which the cervical dorsum forms a broad and low swelling that is sharply (often more or less foveolately) set off along its apical margin. Mesoscutum with notauli narrow and often weak, traceable about 0.4-0.8 its length; surface more or less shining with abundant medium sized to small punctures which may be sharp and almost uniformly adjacent to briefly subadjacent or else small and adjacent to confluent so that surface is extensively and granularly puncto-reticulate. Mesopleuron with subalarum horizontal and in female very long ellipsoid with its summit carinate or subcarinate throughout (sharpest apicad) but in male a little more swollen and often with summit less clearly cristate; speculum shining but mostly invaded by strong punctures and wrinkles; ventral and anterio-ventral margins of speculum much foveolate, without a discrete pit at lower front corner of speculum or a groove linking it to mesopleural suture; prepectal carina gently inclivous and distinct on lower 0.6-0.7 of mesopleuron, but not closely approaching front margin of its sclerite, more irregularly traceable (sometimes absent) and nearly vertical on upper 0.4-0.3, where it may attain subalarum; no excrescence on lower prepectus; disc uniformly with fine and granular reticulo-punctation; sternaulus sinuate, vaguely to rather strongly (especially in males) impressed on basal 0.4-0.5 but obsolete to absent on apical 0.5-0.6. Wing venation: areolet large and high, intercubiti strongly convergent above, 2nd abscissa of radius 0.4-0.6 as long as 1st intercubitus, areolet 1.0-1.2 as high as wide; 2nd recurrent definitely reclivous on lower 0.7 and outcurved or outangled above; discocubitus broadly but quite strongly angled and with ramellus usually well developed; mediella practically straight to weakly arched; axillus very close to anal margin of hind wing. Hind coxa with a rather long, sharp, polished groove descending almost vertically from its attachment. Female fore tibia moderately stout but scarcely inflated. Female 4th tarsomeres all only weakly, subcrescentically emarginate across apex, when viewed from below. Metanotum small but convex in profile sparsely setose and in dorsal view with a pair of extremely large and deep baso-lateral pits that are separated on mid-line by less (sometimes by only 0.5) the width of 1 pit. Groove between metanotum and propodeum in female deep and narrow with submedian tubercles prominent on metanotal face and low but distinct on propodeal face, the sublateral tubercles broadly, subtriangularly produced on metanotal face, absent on propodeal face. Propodeum: spiracle 1.6-1.8 as long as wide; in female short and high, sometimes evenly sloping rearward and without a sharp discontinuity between the basal and apical faces or sometimes with the basal face long and moderately sloping and with the apical face discrete, steep, and only 0.6 as long as the basal; basal trans-carina traceable throughout, mostly sharp or in part weak and irregular, its lateral abscissae swept far forward to the short and straight or weakly curved median segment that remains moderately far from base of propodeum; apical trans-carina absent to vaguely percurrent and well thrust forward medially but remaining far from basal carina; cristae weak, low and broadly crescentic or a little subcuneate; area basalis short and broader than long, quadrate with sides convergent apicad; areola broader than long in position; in male longer and lower than in female with basal and apical faces always more or less smoothly confluent; basal trans-carina strong and sharp throughout or sometimes interrupted laterally; apical trans-carina absent or irregularly traceable, strongly looped forward medially; cristae low crescentic; areola slightly to definitely wider than long in position. First gastric segment: without a baso-lateral expansion on petiole; postpetiole in female 1.2-1.4 as wide apically as long from spiracle to apex, in male 0.8-1.1 as wide; ventro-lateral carina strong and sharp throughout; dorso-lateral carina usually traceable throughout, strongest in female; dorsal carinae in female traceable but not sharp on apex of petiole and basal 0.5-0.6 of postpetiole, where they enclose a low median elevation, but weak to absent in male; sides of petiole between ventral and dorso-lateral carinae vertically wrinkled. Second gastric tergite in female mat, finely and granularly micro-reticulate with abundant, shallow and obscure, rather small to moderately large, subadjacent to rather well separated punctures which emit short setae which generally approach or nearly equal the length of their interspaces; in male more coarsely micro-reticulate than described for female and with rather long setae that generally equal or a little exceed the length of their interspaces. Gaster in female more or less elongate fusiform; in male slender and cylindric. Ovipositor with sheathed portion 0.80 as long as fore wing; straight basally and a little decurved over apical 0.5, slender, compressed; nodus low and weak, with a tiny notch; dorsal valve with a long and gently convex taper between notch and apex; ventral valve on tip with fine and well spaced inclivously oblique ridges; tip 0.19-0.22 as high at notch as long from notch to apex.

GENERIC NAME. From the lepidopterous Family Phycitidae, parasitized by this genus, and from the Greek root, plex-, "smite" or "hit." The combination is regarded as masculine.

SPECIES INCLUDED. Ischnus doddi (Cushman 1927) and Trachysphyrus eremnus (Porter 1967a), as well as perhaps more than 10 undescribed northwest Argentine species. Both names are NEW COMBINATIONS in Phycitiplex.

RELATIONSHIPS. Phycitiplex may be a desertic offshoot of the Itamuton lineage. Some of its distinctive features include the perfectly filiform female flagellum; its relatively short and stout 1st flagellomere (in both sexes); the weakly concave front; comparatively short malar space; somewhat shining mesoscutal disc with almost uniformly adjacent or reticulately confluent sharp punctures; mesopleural disc with uniform fine, granular puncto-reticulation; sternaulus obsolete on apical 0.5 and sometimes vague even anteriad; areolet high with intercubiti strongly convergent above; 2nd recurrent reclivous and outbulged on upper 0.5; mediella straight to only weakly arched; metanotal-propodeal groove with submedian tubercles strong on metanotal face and weaker but distinct on propodeal face; basal trans-carina located comparatively far from front end of propodeum; apical trans-carina sometimes absent, when present and percurrent thrust far forward medially; female cristae weakly crescentic or subcuneate; 2nd gastric tergite with numerous but very obscure punctures, its setae in female short but mostly approaching or equalling length of their interspaces, in male a little longer and denser; ovipositor with sheathed portion 0.80 as long as fore wing, slender, compressed, decurved on apical 0.5, with a low nodus and a weak notch.

Most of these features suggest or do not contradict an affinity to Itamuton. On the other hand, Phycitiplex has some characters reminiscent of the Anacis complex. These include the presence of tyloids only on male flagellar segments 11-15, with full development confined to 12-14, as well as the comparative remoteness of the basal trans-carina from the anterior margin of the propodeum. Nonetheless, the preponderant evidence links Phycitiplex with the Itamuton complex and all resemblance to Anacis would seem casual or parallel.

GEOGRAPHIC DISTRIBUTION. Phycitiplex ranges from Uruguay and the Buenos Aires region of Argentina west and north throughout most semihumid to arid habitats in the subtropical part of Argentina. There is also a Chilean species known from xeric Andean foothills in Aconcagua Province.

KEY TO THE SPECIES OF *PHYCITIPLEX*

(Male of *P. eremnus* unknown)

1. Gaster black with white on 4th tergite only; epomia weak in dorsal 0.5 of scrobe; scutellum wider than long; mesoscutal disc dully shining, rather strongly but finely and granularly puncto-reticulate; large area beneath base of stigma without setae . . . . 1. *Phycitiplex eremnus* (Porter)

1.' Gaster extensively red on tergites 1-3, following tergites blackish with white extensively on 4th and less broadly on 5th and sometimes 6th tergite; epomia strong throughout scrobe; mesoscutal disc shining, with uniformly distributed, sharp, mostly adjacent punctures; wing membrane beneath base of stigma normally setose . . . . 2. *Phycitiplex doddi* (Cushman)

1. *Phycitiplex eremnus* (Porter), new combination

Trachysphyrus eremnus Porter, 1967a. Mem. Amer. Ent. Inst. 10: 109-10.
Type f: Chile, Aconcagua Province, Guardia Vieja, Río Blanco (Ottawa).

FIELD NOTES. This species is known from arid to semiarid Andean foothills on the western edge of the Andes facing the Central Valley of Aconcagua Province north of Santiago, Chile. The vegetation here includes cacti of such genera as *Opuntia* and *Cereus*, spiny shrubs like *Acacia caven*, and a more diverse and luxuriant relict North Valdivian flora along watercourses in shaded ravines.

2. *Phycitiplex doddi* (Cushman), new combination

(Fig. 104, 172)

Ischnus doddi Cushman, 1927. Proc. U. S. Natl. Mus. 72(13): 5.
Type f: Uruguay, Piriápolis (Washington).

Trachysphyrus doddi Porter, 1967a. Mem. Amer. Ent. Inst. 10: 106-9.

FIELD NOTES. *Phycitiplex doddi* has been collected repeatedly in the Pampa, Chaco, and Subandean Desert biomes of north-central and northwest Argentina. There are records for the provinces of Buenos Aires, Santiago del Estero, Tucumán, Salta, and La Rioja. This species is among the most xerophilous of South American ichneumonids. Many specimens were collected in Malaise Traps during an entomological survey of the northwest Argentine Subandean Desert (Monte or Subandino) conducted by the Instituto Miguel Lillo (Universidad Nacional de Tucumán) between 1969 and 1971. It was 1 of only 3 ichneumonids (the others were unidentified species of *Anomalon* and *Eiphosoma*) collected by traps left in *Prosopis* scrub on a vast and arid plain at 900 m altitude near Chilecito in La Rioja Province. Rainfall at this site averages less than 200 mm yearly and the area is exposed to summer maximum temperatures of more than 40° C and winter minima below freezing (with sunny days that often reach 15°-25° C). The broad climatic tolerance of *Phycitiplex doddi* as well as its altitudinal range from sealevel to 2000 m perhaps explain why it is represented by a close relative on west Andean slopes in Chilean thorn scrub.

HOSTS. Phycitiplex doddi parasitizes the phycitid moth, Cactoblastis cactorum. The larvae of this moth live as gregarious borers in joints of prickly-pear cacti in the genus Opuntia (Platypuntia).

25. Genus MYRMECACIS Porter, new genus

Type species: Trachysphyrus metargas Porter, 1967a.

Fore wing 4.8-7.3 mm. Coloration: head and mesosoma black with very sparse and inconspicuous to rather profuse white markings; gaster black, red, or orange (when pale often extensively and irregularly stained with black) and in some species with white apical markings on any or all of tergites 4-8; flagellum black with a white band; legs predominantly black, orange, or red (when pale often more or less prominently marked or stained with black) and with variably developed white areas, particularly on hind tarsus. Flagellum in female approaching or exceeding length of body, slender, often slightly thickened and flattened below on apical 0.5 but always essentially filiform, its 1st segment 5.8-6.7 as long as deep at apex; in male about as long as in female but slightly heavier and setaceous, with tyloids on as few as segments 14-16 and on as many as 12-17, with all except occasionally the distalmost tyloid longitudinally oriented on their segments, and with tyloid shape carinately linear, straight and bacilliform, or in either case on certain segments a little decurved both at base and apex, its 1st segment 3.4-4.3 as long as deep at apex. Front gently concave with lower 0.5 or less shining and partly smooth with some transverse wrinkles and upper 0.5-0.7 mat or dully shining with granulate reticulation and micro-sculpture, as well as with some stronger wrinkles that are in part very irregular and in part transversely biased. Face 1.8-2.2 as wide as high from top of anterior tentorial pit to bottom of antennal socket. Clypeus moderately large; in profile varying from almost flat (in some males) to moderately or strongly elevated and asymmetrically to symmetrically blunt pyramidal or subpyramidal with the basal face sometimes a little convex and the apical face gently concave; apical margin slightly to rather strongly convex, sometimes with a broad but weak median convexity or medially bisinuate or vaguely tuberculate, sharply defined and very narrow in female but sometimes broad in male, the corners more or less narrowly reflexed. Mandible stout, gently to strongly and evenly tapered from base to apex, 2.3-3.0 as wide across teeth as long from base to apex; the teeth subequal with lower tooth often a little shorter than upper. Malar space in female 0.70-0.90 as long as basal width of mandible, in male 0.60-0.90 as long. Occipital carina fine and sharp, joining the moderately raised hypostomal carina below at a rather broad angle. Pronotum with humeral margin in female at most weakly swollen and with a percurrent, narrow to moderately broad, sometimes apically attenuate, finely to coarsely foveolate humeral groove but in males with humeral margin more swollen and the groove less strongly developed; epomia sharp in scrobe, sometimes much prolonged ventrad and dorsad but at most with a vague swelling above its upper end; lower front pronotal margin curved to broadly angled and usually with a wide but inconspicuous tooth at mid-height; upper margin sublaterally and across front of collar with a weakly raised and often translucent carina, the postjacent cervical dorsum transversely swollen and the well defined swelling set off apicad by a delicate groove and more or less well developed row of foveae. Mesoscutum with notauli fine and sharp (at least near base) or mostly delicate to faint and traceable 0.3-0.7 the length of mesoscutum; surface mat to moderately shining (especially in some males) with dense and fine to rather strong puncto-reticulation and/or with adjacent to confluent punctures or (in some males) partly with subadjacent punctures that expose smooth interstices, sometimes almost uniformly reticulo-rugose or in some species with contrastingly stronger wrinkling along notauli externally as well as between and behind their apices. Mesopleuron: subalarum horizontal, in females more or less narrow and crescentic with summit subcarinate or even weakly carinate, but in some males ovoidly swollen with only the apex becoming carinate; speculum most often extensively invaded by punctures and wrinkles and weakly shining to mat but in some species extensively smooth and polished, its lower anterior corner with a small impression that is joined by an oblique groove to the mesopleural suture (these features difficult to see in coarsely sculptured specimens); prepectal carina gently inclivous to almost vertical, usually traceable to dorsal 0.6-0.8 of mesopleuron and often continuing (vertically or recurved) traceable to subalarum; no excrescence on lower prepectus; surface throughout finely to moderately strongly and usually granularly reticulately wrinkled or puncto-reticulate, in a few species with contrastingly more longitudinally biased wrinkles on much of upper 0.5; sternaulus weakly to strongly impressed, usually at least gently upcurved and clearly traceable on basal 0.5-0.7 of mesopleuron but becoming obsolete or absent apicad toward mid coxal base. Wing venation: areolet large and moderately high to very high, intercubiti usually strongly convergent above, 2nd abscissa of radius 0.4-0.8 as long as 1st intercubitus, areolet 1.0-1.6 as high as wide; discocubitus broadly to rather strongly angled; 2nd recurrent gently reclivous, outbulged somewhat above; mediella gently to moderately arched; axillus near anal margin of wing. Hind coxa below attachment with a sharp and polished vertical groove that may be long and conspicuous or short and difficult to detect without removing the leg. Female fore tibia stout and moderately inflated. Female 4th tarsomeres weakly emarginate on apex. Metanotum flat to moderately convex in profile, its basal fossae deep and separated on meson by a little more to much less than the width of 1 fossa. Groove between metanotum and propodeum in female deep and comparatively broad with the submedian tubercles detectable and often prominent on both metanotal and propodeal faces and with the sublateral tubercles weakly to prominently developed on metanotal face but obsolete on propodeal face; in male with groove deep but broader than in female and more open laterad with both submedian and sublateral tubercles usually detectable on propodeal and metanotal faces, the sublateral pair often weak but the submedian tubercles frequently very strong. Propodeum with spiracle 1.4-1.7 as long as wide; in females short and high to a little elongate and with basal and apical faces sharply discrete, the apical face falling off vertically or somewhat obliquely; basal trans-carina traceable throughout, fine and a little irregular to uniformly strong, and thrust far forward in a gently to rather narrowly V-like configuration and with its median segment (front abscissa of areola) short and sometimes briefly transverse or in other cases rounded-off to subacute, usually attaining basal 0.1-0.2 of dorsal face of propodeum and always reaching basal 0.3; apical trans-carina usually traceable throughout, sometimes as strong as basal carina but more often weaker and irregular and occasionally obsolete, moderately thrust or arched forward medially with the median abscissa gently arched to practically straight and always far removed from basal trans-carina; cristae moderately large and prominently projecting subcuneate, obtusely cuneate, short ligulate or even conico-ligulate; area basalis short but wider than long with its vaguely defined lateral carinae strongly convergent upon the short median segment of the basal trans-carina; areola weakly defined, its lateral carinae as a rule obsolete, pentagonal to narrowly hexagonal in position and usually at least as long as wide and often definitely longer; in male propodeum is slightly to considerably longer and lower than in female with its carinae and cristae often stronger than in female (sometimes weaker) but disposed in essentially the same pattern. First gastric segment: with at most a low and flange-like baso-lateral expansion on petiole; postpetiole in female 1.0-1.4 as wide apically as long from spiracle to apex, in male 0.6-1.2 as wide as long; ventro-lateral carina strong and sharp on postpetiole but weaker or absent basad on petiole; dorso-lateral carina fine and sharp on postpetiole, variably developed basad on petiole; dorsal carinae at least vaguely traceable and demarking a slightly raised median area on apex of petiole and base or postpetiole (poorly developed or absent in male). Second gastric tergite in female mat to dully shining with very fine and granular micro-reticulation as well as abundant, small to tiny, very faint punctures that emit short setae which generally equal or exceed their interspaces, in male a little more coarsely micro-reticulate than in female and with setae even longer and uniformly overlapping. Ovipositor with sheathed portion 0.30-0.40 as long as fore wing; straight, moderately stout, definitely compressed; nodus high and with a small, sharp notch; dorsal valve with a straight to slightly convex taper between notch and apex; ventral valve with fine, inclivously oblique ridges on tip; tip 0.23-0.30 as high at notch as long from notch to apex.

GENERIC NAME. From the Greek myrmex (myrmecos), "ant" and the Greek noun acis, "pointed object." The combination is feminine.

SPECIES INCLUDED. Trachysphyrus metargas (Porter 1967a), T. probles (Porter 1967a), T. eremnops (Porter 1967a), and T. lipothrix (Porter 1967a). All these names are NEW COMBINATIONS in Myrmecacis.

RELATIONSHIPS. Myrmecacis belongs to the Itamuton generic group and shares with other members of its series a high areolet with dorsally convergent intercubiti and a reclivous 2nd recurrent vein that is a little outbulged above. Some of its precinctive or partially diagnostic characters include the very long and apically a little swollen female flagellum; the presence of sometimes as few as 3 (up to a maximum of 6) tyloids on the male flagellum; the gently concave front; short malar space; often well developed submedian and sublateral tubercles on both faces of the metanotal-propodeal groove; basal trans-carina thrust far forward in a V-shaped configuration and reaching proximal 0.3-0.1 of propodeal dorsum; moderately large and prominently projecting propodeal cristae; somewhat inflated female fore tibia; 2nd gastric tergite in both sexes with setae that mostly equal or exceed the length of their interspaces; and short (0.30-0.40 as long as fore wing), straight ovipositor with a high nodus and sharp notch (tip 0.23-0.30 as high at notch as long from notch to apex).

The Chilean type species, M. metargas, is unique within its genus and among most associated genera by reason of its apically truncate last flagellomere, unusually discrete clypeal faces, generally mat and finely granular mesosomatic sculpture, strongly angled discocubitus, and comparatively slender female postpetiole. Otherwise, the Argentine *Myrmecacis* much resemble their putative Chilean congener. The occurrence of at least 1 undescribed *Myrmecacis* at altitudes of up to 2000 m in the Subandean Desert of northwest Argentina lends ecological plausibility to the inclusion of east and west Andean species in this genus. Even slight climatic warming (during Pleistocene interglacials or in the late Tertiary) would have allowed dispersal of *Myrmecacis* between Chile and Argentina in subtropical latitudes.

GEOGRAPHIC DISTRIBUTION. *Myrmecacis metargas* occurs in Chile from Santiago to Chiloé Island. In Neotropical South America, the genus has *T. probles* of the Selva Paranense in southern Brasil and northeast Argentina with an austral extension in subtropical gallery forest as far as Buenos Aires, *T. eremnops* and *T. lipothrix* from interdigitating Selva Tucumano-Boliviana and Chaco Serrano in northwest Argentina, and an undescribed species (or subspecies of *T. probles*) that ranges widely in the Subandean Desert of Salta, Tucumán, Catamarca, and La Rioja Provinces).

1. *Myrmecacis metargas* (Porter), new combination

(Fig. 148, 182, cf. 106-111)

Trachysphyrus metargas Porter, 1967a. Mem. Amer. Ent. Inst. 10: 148-50.
Type f: Chile, Santiago Province, El Canelo (Cambridge).

FIELD NOTES. I have not collected this species since 1964, when I found it "moderately common on the leaves of trees and shrubs in bright sun" at El Canelo near Santiago, Chile in a north-south oriented mountain valley with lush relict Northern Valdivian forest in shaded areas along the watercourse. Its size, coloration, and movements all suggest the common and obnoxious ant, *Camponotus chilensis*, of which it probably is a Batesian mimic.

This is a species of sheltered quebradas in the Central Valley south through Northern Valdivian Forest and Valdivian Forest as far as Chiloé Island.

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EXPLANATION OF FIGURES

PLATE I

Fig. 1. *Cyclaulus* sp. Ovipositor tip, lateral view.
Fig. 2. *Dotocryptus* *bellicosus*. Ovipositor tip, lateral view.
Fig. 3. *Trachysphyrus* *irinus*. Ovipositor tip, lateral view.
Fig. 4. *Aeglocryptus* *viridis*. Ovipositor tip, lateral view.
Fig. 5. *Itamuton* *rufitibia*. Ovipositor tip, lateral view.
Fig. 6. *Chilecryptus* *rhadinus*. Ovipositor tip, lateral view.
Fig. 7. *Chilecryptus* *tetracanthus*. Ovipositor tip, lateral view.
Fig. 8. *Neocryptopteryx* *ocris*. Ovipositor tip, lateral view.

PLATE II

Fig. 9. *Dotocryptus* *pedisequus*, (f). Head, front view.
Fig. 10. *Dotocryptus* *bellicosus*, (f). Head, front view.
Fig. 11. *Xiphonychidium* *viduum*, (m). Head, front view.
Fig. 12. *Cyclaulus* sp., (f). Head, front view.
Fig. 13. *Dotocryptus* *pedisequus*, (f). First tergite, dorsal view.
Fig. 14. *Dotocryptus* *bellicosus*, (f). First tergite, dorsal view.
Fig. 15. *Dotocryptus* *bellicosus*, (f). Rear mesosoma, first tergite, dorsal view.
Fig. 16. *Dotocryptus* *pedisequus*, (f). Rear mesosoma, dorsal view.

PLATE III

Fig. 17. *Dotocryptus* *bellicosus*, (f). Mesoscutum, dorsal view.
Fig. 18. *Dotocryptus* *bellicosus*, (f). Head and mesosoma, side view.
Fig. 19. *Dotocryptus* *bellicosus*, (f). Rear mesosoma, dorsal view.
Fig. 20. *Dotocryptus* *pedisequus*, (f). Mesoscutum, dorsal view.
Fig. 21. *Xiphonychidion* *viduum*, (m). Mesoscutum, dorsal view.
Fig. 22. *Xiphonychidion* *cyanipenne*, (m). Mesoscutum, dorsal view.

PLATE IV

Fig. 23. *Cyclaulus* sp., (f). Pro and mesothorax, dorsal view.
Fig. 24. *Cyclaulus* sp., (f). Pro and mesothorax, lateral view.
Fig. 25. *Cyclaulus* sp., (f). Propodeal region, lateral view.
Fig. 26. *Xiphonychidion* *cyanipenne*, (m). Head, front view.
Fig. 27. *Xiphonychidion* *cyanipenne*, (m). Head, pro and mesothorax, lateral view.

PLATE V

Fig. 28. *Dotocryptus* *pedisequus*, (f). Head, mesosoma, and base of gaster, lateral view.
Fig. 29. *Dotocryptus* *pedisequus*, (f). Head, pro and mesothorax, base of metathorax and of propodeum, lateral view.
Fig. 30. *Dotocryptus* *pedisequus*, (f). Propodeum and first gastric segment, lateral view.
Fig. 31. *Dotocryptus* *bellicosus*, (f). Propodeum and first gastric segment, lateral view.

Fig. 32. *Xiphonychidion viduum*, (m). First gastric tergite, dorsal view.

Fig. 33. *Xiphonychidion viduum*, (m). Head and mesosoma, lateral view.

Fig. 34. *Xiphonychidion cyanipenne*, (m). Mesosoma, posterio-lateral view.

Fig. 35. *Sciocryptus lachnaeis*, (f). Head, front view.

Fig. 36. *Sciocryptus lachnaeis*, (f). Head and thorax, lateral view.

PLATE VII

Fig. 37. *Sciocryptus lachnaeis*, (f). Gaster, posterio-lateral view.

Fig. 38. *Sciocryptus lachnaeis*, (f). Part of mesoscutum, showing sculpture along and between notauli.

Fig. 39. *Trachysphyrus irinus*, (f). Head, front view.

Fig. 40. *Trachysphyrus irinus*, (f). Mesoscutum, dorsal view.

Fig. 41. *Trachysphyrus irinus*, (f). Head and thorax, lateral view.

Fig. 42. *Trachysphyrus irinus*, (f). Propodeal region, lateral view.

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Fig. 43. *Trachysphyrus irinus*, (f). Propodeum and base of gaster, lateral view.

Fig. 44. *Trachysphyrus metallicus*, (f). Second gastric tergite, dorsal view.

Fig. 45. *Trachysphyrus irinus*, (f). Gaster, lateral view.

Fig. 46. *Aeliopotes paitensis*, (f). Base of first gastric tergite, dorsal view.

Fig. 47. *Trachysphyrus metallicus*, (f). Ovipositor, lateral view.

Fig. 48. *Aeglocryptus viridis*, (f). Propodeal area, lateral view.

Fig. 49. *Trachysphyrus aegla*, (m). Second and adjoining gastric tergites, dorsal view.

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Fig. 50. *Aeglocryptus viridis*, (f). Head and thorax, lateral view.

Fig. 51. *Aeliopotes paitensis*, (f). Mesoscutum, dorsal view.

Fig. 52. *Aeglocryptus viridis*, (f). Mesoscutum, dorsal view.

Fig. 53. *Aeliopotes paitensis*, (f). Head and thorax, lateral view.

Fig. 54. *Aglaodina cribricollis*, (f). Subapical 0.6 of fore wing.

Fig. 55. *Aeglocryptus viridis*, (f). Base of gaster, lateral view.

PLATE X

Fig. 56. *Aglaodina cribricollis*, (f). Head, front view.

Fig. 57. *Aglaodina cribricollis*, (f). Propodeal region, dorsal view.

Fig. 58. *Aglaodina cribricollis*, (f). Head and thorax, lateral view.

Fig. 59. *Aglaodina cribricollis*, (f). Propodeal region, lateral view.

Fig. 60. *Aglaodina cribricollis*, (f). Mesoscutum, dorsal view.

Fig. 61. *Dochmidium* sp., (m). Head and mesosoma, dorsal view.

Fig. 62. *Dochmidium* sp., (m). Head, front view.

Fig. 63. *Dochmidium* sp., (m). Second gastric tergite, dorsal view.

Fig. 64. *Dochmidium* sp., (m). Head and thorax, lateral view.

Fig. 65. *Dochmidium* sp., (m). Propodeal region, lateral view.

Fig. 66. *Dochmidium* sp., (m). Mesoscutum, dorsal view.
Fig. 67. *Anacis festiva*, (f). Head, front view.

PLATE XII

Fig. 68. *Caenopelte palinorsa*, (m). Head, front view.
Fig. 69. *Caenopelte palinorsa*, (m). Lateral view of whole insect.
Fig. 70. *Caenopelte palinorsa*, (m). Mesoscutum, dorsal view.
Fig. 71. *Caenopelte palinorsa*, (m). Propodeal region, dorsal view.
Fig. 72. *Anacis festiva*, (m). Whole insect, lateral view.
Fig. 73. *Anacis festiva*, (m). Propodeal region, dorsal view.

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Fig. 74. *Anacis festiva*, (m). Mesoscutum, dorsal view.
Fig. 75. *Anacis rubripes*, (f). Head, front view.
Fig. 76. *Anacis rubripes*, (f). Mesoscutum, dorsal view.
Fig. 77. *Anacis rubripes*, (f). Head and mesosoma, lateral view.
Fig. 78. *Anacis rubripes*, (f). Propodeum and gastric base, lateral view.
Fig. 79. *Anacis rubripes*, (f). Propodeal region, dorsal view.

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Fig. 80. *Anacis rubripes*, (f). Second gastric tergite, dorsal view.
Fig. 81. *Cosmiocryptus weyrauchi*, (f). Head and thorax, lateral view.
Fig. 82. *Cosmiocryptus weyrauchi*, (f). Propodeal region, lateral view.
Fig. 83. *Cosmiocryptus diplatys*, (f). Ovipositor, lateral view.
Fig. 84. *Cosmiocryptus weyrauchi*, (f). Second tergal region, dorsal view.
Fig. 85. *Cosmiocryptus weyrauchi*, (f). Clypeal region, front view.
Fig. 86. *Cosmiocryptus diplatys*, (f). Clypeal region, front view.
Fig. 87. *Cosmiocryptus violaceipennis*, (f). Mesoscutum, dorsal view.

PLATE XV

Fig. 88. *Chilecryptus rhadinus*, (f). Head and part of thorax, lateral view.
Fig. 89. *Chilecryptus rhadinus*, (f). Part of mesoscutum, dorsal view.
Fig. 90. *Chilecryptus rhadinus*, (f). Propodeal region, lateral view.
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Fig. 92. *Chilecryptus tetracanthus*, (f). Head, front view.
Fig. 93. *Chilecryptus tetracanthus*, (f). Rear of mesonotum and propodeum, dorsal view.
Fig. 94. *Chilecryptus tetracanthus*, (f). Mesosoma, lateral view.

Fig. 95. *Chilecryptus tetracanthus*, (f). Propodeum and gastric base, lateral view.
Fig. 96. *Chilecryptus tetracanthus*, (f). Second gastric tergite, dorsal view.

PLATE XVII

Fig. 97. *Neocryptopteryx ocris*, (f). Head, front view.
Fig. 98. *Neocryptopteryx ocris*, (f). Second gastric tergite, dorsal view.
Fig. 99. *Neocryptopteryx ocris*, (f). Mesoscutum, dorsal view.
Fig. 100. *Neocryptopteryx ocris*, (f). Head and thorax, lateral view.
Fig. 101. *Itamuton rufitibia*, (f). Head, front view.
Fig. 102. *Itamuton rufitibia*, (f). Mesoscutum, dorsal view.

PLATE XVIII

Fig. 103. *Itamuton rufitibia*, (f). Head and thorax, lateral view.
Fig. 104. *Phycitiplex doddi*, (f). Head and thorax, lateral view.
Fig. 105. *Itamuton rufitibia*, (f). Propodeum and gastric base, lateral view.
Fig. 106. *Myrmecacis probles*, (m). Head, front view.
Fig. 107. *Myrmecacis probles*, (m). Head and much of mesosoma, lateral view.
Fig. 108. *Myrmecacis probles*, (m). Mesoscutum, dorsal view.
Fig. 109. *Myrmecacis probles*, (m). Second gastric tergite, dorsal view.
Fig. 110. *Myrmecacis probles*, (m). Propodeal region, dorsal view.
Fig. 111. *Myrmecacis probles*, (m). Propodeum and gastric base, lateral view.

PLATE XIX

Map 1. CHILEAN FAUNAL ZONES (From Peña 1966)

PLATE XX

Fig. 112. *Xiphonychidion cyanipenne*. Ovipositor tip, lateral view.
Fig. 113. *Xiphonychidion caeruleipenne*. Ovipositor tip, lateral view.
Fig. 114. *Xiphonychidion stibarum*. Ovipositor tip, lateral view.
Fig. 115. *Xiphonychidion atmetum*. Ovipositor tip, lateral view.
Fig. 116. *Xiphonychidion nerhysum*. Ovipositor tip, lateral view.
Fig. 117. *Trachysphyrus metallicus*. Ovipositor tip, lateral view.
Fig. 118. *Trachysphyrus irinus*. Ovipositor tip, lateral view.
Fig. 119. *Trachysphyrus venustus*. Ovipositor tip, lateral view.
Fig. 120. *Xiphonychidion viduum*. Ovipositor tip, lateral view.
Fig. 121. *Aeglocryptus viridis*. Ovipositor tip, lateral view.
Fig. 122. *Trachysphyrus venustus*, (f). Dorsal view of head.
Fig. 123. *Aglaodina cribricollis*. Ovipositor, lateral view.
Fig. 124. *Xylacis echthroides*. Ovipositor, lateral view.
Fig. 125. *Nothischnus riverai*. Ovipositor tip, lateral view.
Fig. 126. *Caenopelte palinorsa*. Ovipositor tip, lateral view.
Fig. 127. *Anacis festiva*. Ovipositor tip, lateral view.

Fig. 128. Anacis varipes. Ovipositor tip, lateral view.
Fig. 129. Anacis rufipes. Ovipositor tip, lateral view.
Fig. 130. Anacis rubripes. Ovipositor tip, lateral view.
Fig. 131. Cosmiocryptus weyrauchi. Ovipositor tip, lateral view.
Fig. 132. Cosmiocryptus aricae. Ovipositor tip, lateral view.
Fig. 133. Cosmiocryptus leptaechma. Ovipositor tip, lateral view.
Fig. 134. Cosmiocryptus violaceipennis. Ovipositor tip, lateral view.
Fig. 135. Chilecryptus tetracanthus. Ovipositor tip, lateral view.
Fig. 136. Chilecryptus ithyption. Ovipositor tip, lateral view.
Fig. 137. Araucacis melanthes. Ovipositor tip, lateral view.
Fig. 138. Araucacis leptaulax. Ovipositor, lateral view.
Fig. 139. Neocryptopteryx hypodyneri. Ovipositor, lateral view.
Fig. 140. Neocryptopteryx oedipus. Ovipositor tip, lateral view.
Fig. 141. Neocryptopteryx metriurus. Ovipositor tip, lateral view.
Fig. 142. Oecetiplex borsani. Ovipositor tip, lateral view.
Fig. 143. Hypsanacis hoplites. Ovipositor tip, lateral view.
Fig. 144. Hypsanacis paradeisus. Ovipositor tip, lateral view.
Fig. 145. Itamuton magallanes. Ovipositor tip, lateral view.
Fig. 146. Itamuton rufitibia. Ovipositor tip, lateral view.
Fig. 146. Anacis stangeorum. Ovipositor tip, lateral view.
Fig. 147. Myrmecacis metargas. Ovipositor tip, lateral view.
Fig. 148. Myrmecacis metargas. Ovipositor tip, lateral view.
Fig. 149. Trachysphyrus venustus, (f). Head, front view.
Fig. 150. Trachysphyrus imperialis, (f). Head, front view.
Fig. 151. Aglaodina hyperbasa, (f). Head, front view.
Fig. 152. Aeglocryptus nigricornis, (f). Head, front view.
Fig. 153. Aeglocryptus viridis, (f). Head, front view.
Fig. 154. Trachysphyrus peñai, (f). Head, front view.

PLATE XXII

Fig. 155. Dotocryptus bellicosus, (f). Whole insect, lateral view (Townes 1969)
Fig. 156. Dotocryptus bellicosus, (f). Ovipositor tip, lateral view (Townes 1969).
Fig. 157. Dotocryptus eoeus, (f). First tergite, lateral view.
Fig. 158. Dotocryptus boreas, (f). First tergite, lateral view.
Fig. 159. Dotocryptus pedisequus, (f). Head, lateral view.
Fig. 160. Dotocryptus eoeus, (f). Areolet.
Fig. 161. Dotocryptus zephyrus, (f). Areolet
Fig. 162. Dotocryptus pedisequus, (f). Prepectal region, lateral view.

PLATE XXIII

Fig. 163. Trachysphyrus agenor, (f). Propodeum, dorsal view.
Fig. 164. Trachysphyrus peñai, (f). Propodeum, dorsal view.
Fig. 165. Aglaodina daseia, (f). Propodeum, dorsal view.
Fig. 166. Itamuton rufitibia, (m). Propodeum, dorsal view.
Fig. 167. Oecetiplex borsani, (f). Propodeum, dorsal view.
Fig. 168. Trachysphyrus agenor, (m). Subgenital plate.
Fig. 169. Trachysphyrus irinus, (m). Subgenital plate.
Fig. 170. Periplasma tanaum, (f). Head and prothorax, lateral view.

Fig. 171. *Araucacis melanthes*, (f). Head, lateral view.
Fig. 172. *Phycitiplex doddi*, (f). Propodeum, lateral view.
Fig. 173. *Hypsanacis hoplites*, (f). Propodeum, lateral view.
Fig. 174. *Cosmiocryptus aricae*, (f). Front tibia.
Fig. 175. *Cosmiocryptus leptaechma*, (f). Front tibia.
Fig. 176. *Trachysphyrus agenor*, (f). First 3 flagellomeres.
Fig. 177. *Trachysphyrus irinus*, (f). First 3 flagellomeres.
Fig. 178. *Anacis hercana*, (f). Areolet.
Fig. 179. *Xylacis echthroides*, (f). Head, front view.

PLATE XXIV

Fig. 180. *Picrocryptoides willinki*, (f). Fore wing.
Fig. 181. *Aeliocryptus paitensis*, (f). Fore wing.
Fig. 182. *Myrmecacis metargas*, (f). Wings.
Fig. 183. *Itamuton rufitibia*, (f). Wings.
Fig. 184. *Anacis rubripes*, (f). Wings.
Fig. 185. *Dochmidium* sp., (f). Fore wing.
Fig. 186. *Cyclaulus eremia*, (f). Lateral view of body, showing habitus and color pattern.
Fig. 187. *Aeglocryptus cleonis*, (f). Propodeum and first 2 gastric tergites, dorsal view. (Townes 1969)
Fig. 188. *Picrocryptoides willinki*, (f). Propodeum and first 2 gastric tergites, dorsal view. (Townes 1969)
Fig. 189. *Anacis stangeorum*, (f). Head, front view.
Fig. 190. *Sciocryptus lachnaeis*, (f). Propodeum and first 2 gastric tergites, dorsal view. (Townes 1969)
Fig. 191. *Xiphonychidion cyanipennis*, (f). Propodeum and first 2 gastric tergites, dorsal view. (Townes 1969)
Fig. 192. *Anacis festiva*, (f). Propodeum and first 2 gastric tergites, dorsal view. (Townes 1969)
Fig. 193. *Caenopelte palinorsa*, (f). Propodeum and first 2 gastric tergites, dorsal view. (Townes 1969)

PLATE XXV

Fig. 194. *Neocryptopteryx metriurus*, (f). Wings. (Blanchard 1949)
Fig. 195. *Chilecryptus tetracanthus*, (f). Wings.
Fig. 196. *Neocryptopteryx blanchardi*, (f). Wings. (Blanchard 1947)
Fig. 197. *Xiphonychidion viduum*, (f). Wings.
Fig. 198. *Picrocryptoides willinki*, (f). Whole insect, lateral view. (Townes 1969)
Fig. 199. *Picrocryptoides willinki*, (f). Ovipositor tip, lateral view. (Townes 1969)
Fig. 200. *Oecetiplex borsani*, (f). Wings. (Blanchard 1941)

PLATE XXVI

Fig. 201. *Aglaodina cribricollis*, (f). Wings.
Fig. 202. *Mesostenus transfuga*, (f). Whole insect, lateral view. (Townes 1969)
Fig. 203. *Sciocryptus lachnaeis*, (f). Whole insect, lateral view. (Townes 1969)

Fig. 204. Xiphonychidion cyanipenne, (f). Whole insect, lateral view. (Townes 1969)

Fig. 205. Aeglocryptus cleonis, (f). Whole insect, lateral view. (Townes 1969)

PLATE XXVII

Fig. 206. Anacis festiva, (f). Whole insect, lateral view. (Townes 1969)

Fig. 207. Caenopelte palinorsa, (f). Whole insect, lateral view. (Townes 1969)

Fig. 208. Anacis rufipes, (f). Dorsal view, showing habitus and color pattern. (Havrylenko and Winterhalter 1949)

PLATE XXVIII

Fig. 209. Itamuton occidens, (m). Habitus sketch of whole insect, lateral view.

Fig. 210. Anacis festiva, (f). Habitus sketch of whole insect, lateral view.

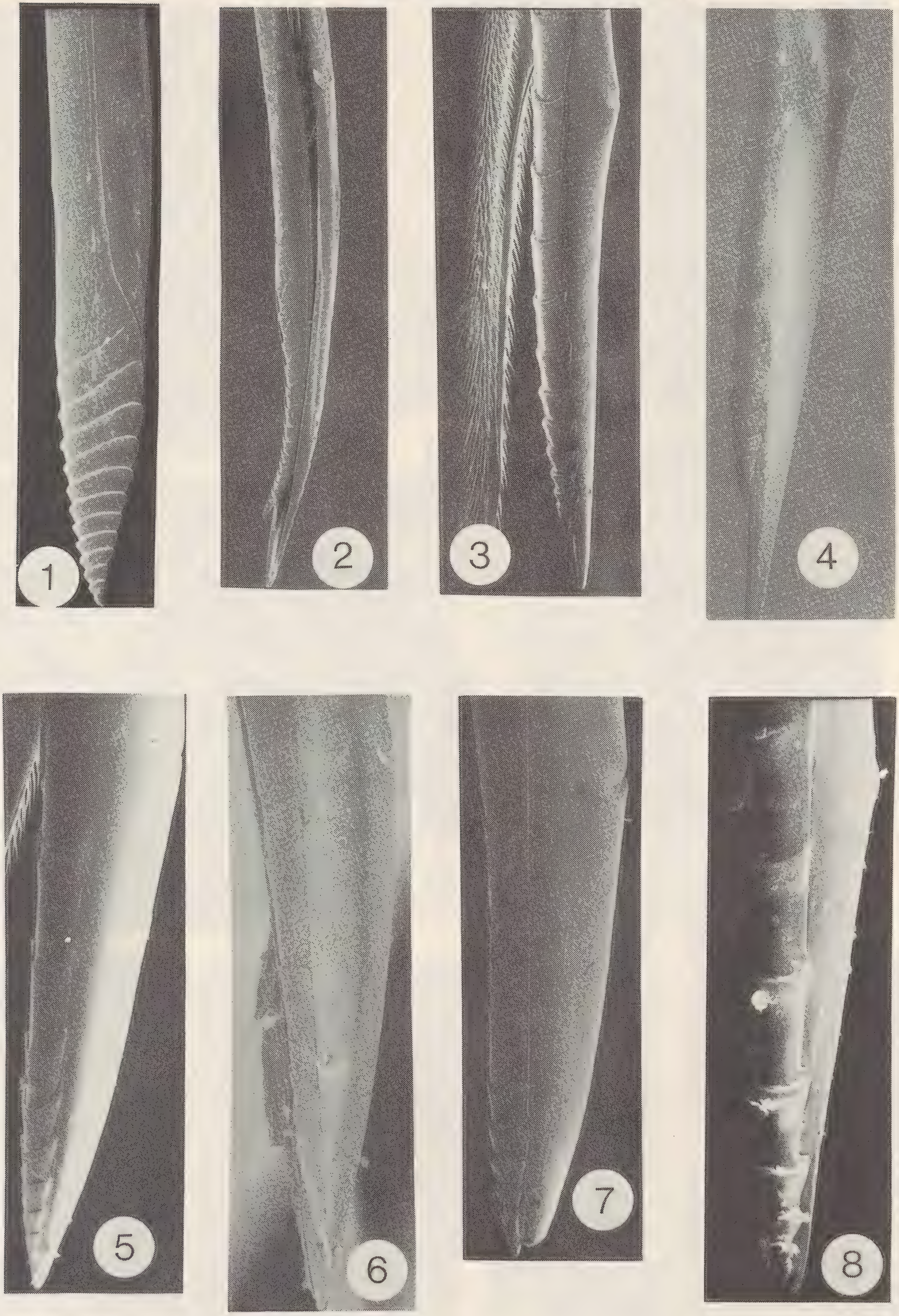


PLATE I. 1. Cyclaulus sp. 2. Dotocryptus bellicosus. 3. Trachysphyrus irinus. 4. Aeglocryptus viridis. 5. Itamuton rufitibia. 6. Chilecryptus rhadinus. 7. C. tetracanthus. 8. Neocryptopteryx ocris.

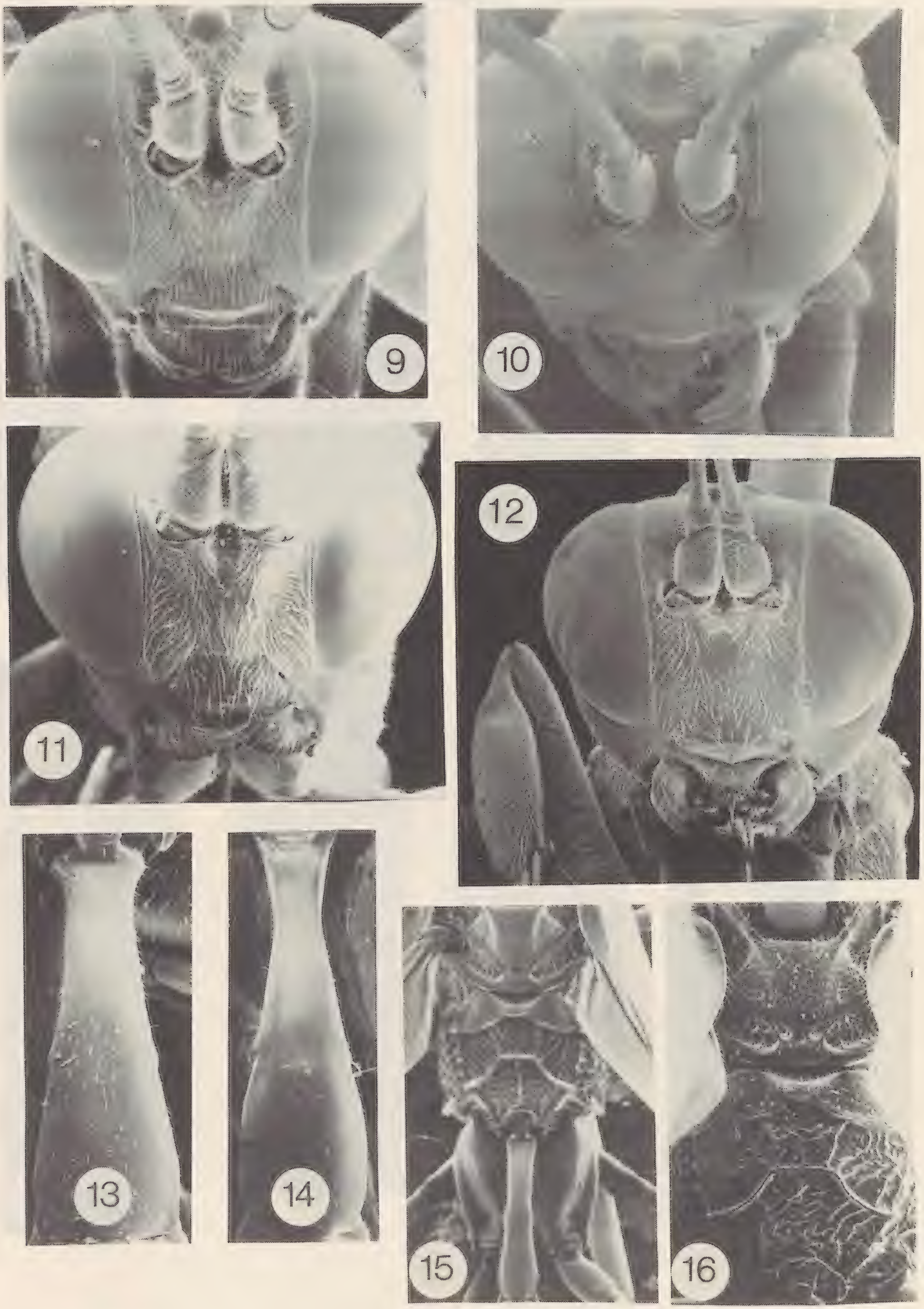


PLATE II. 9. D. pedisequus. 10. D. bellicosus. 11. Xiphonychidion viduum. 12. Cyclaulus sp. 13. Dotocryptus pedisequus. 14-15. D. bellicosus. 16. D. pedisequus.

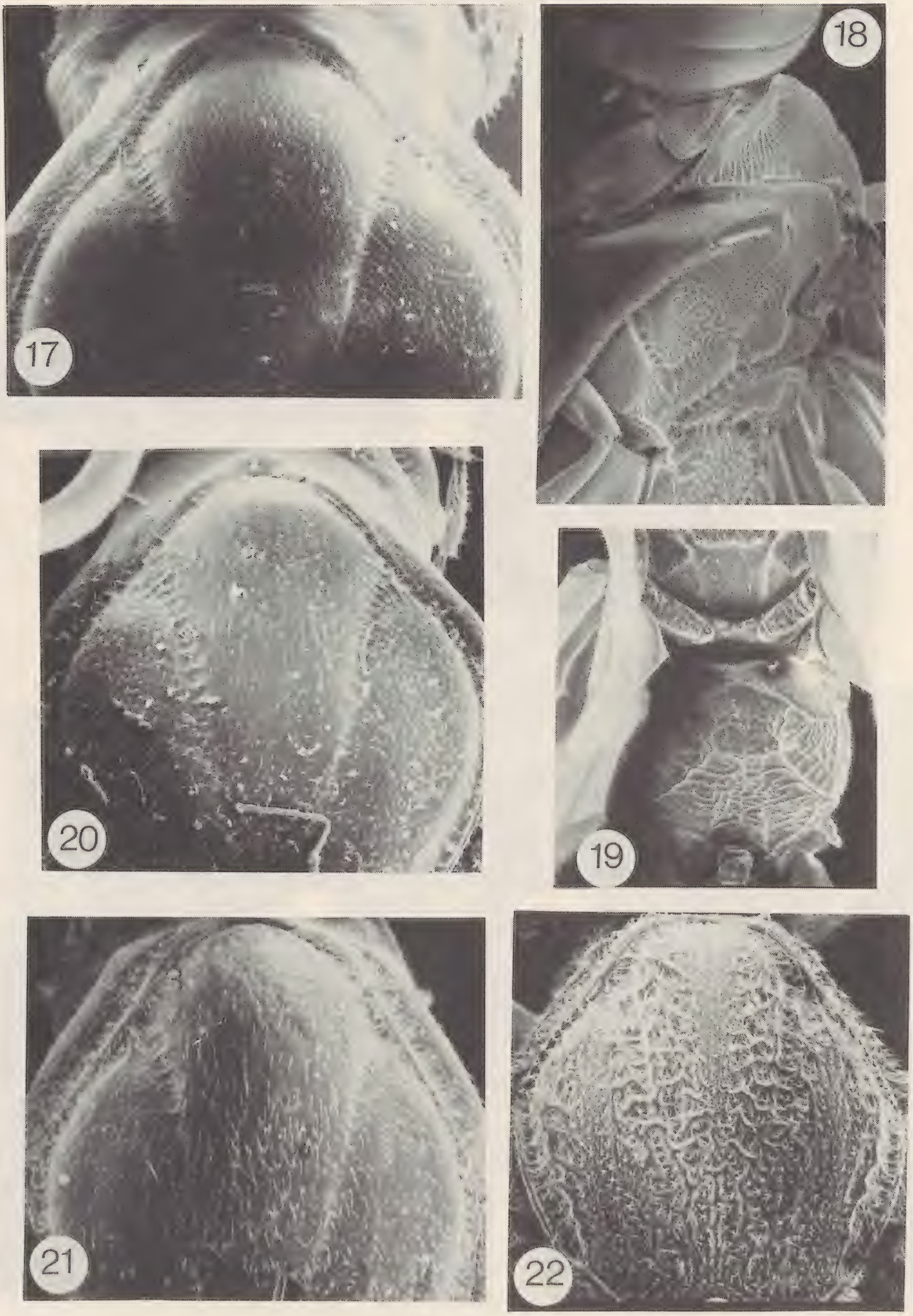
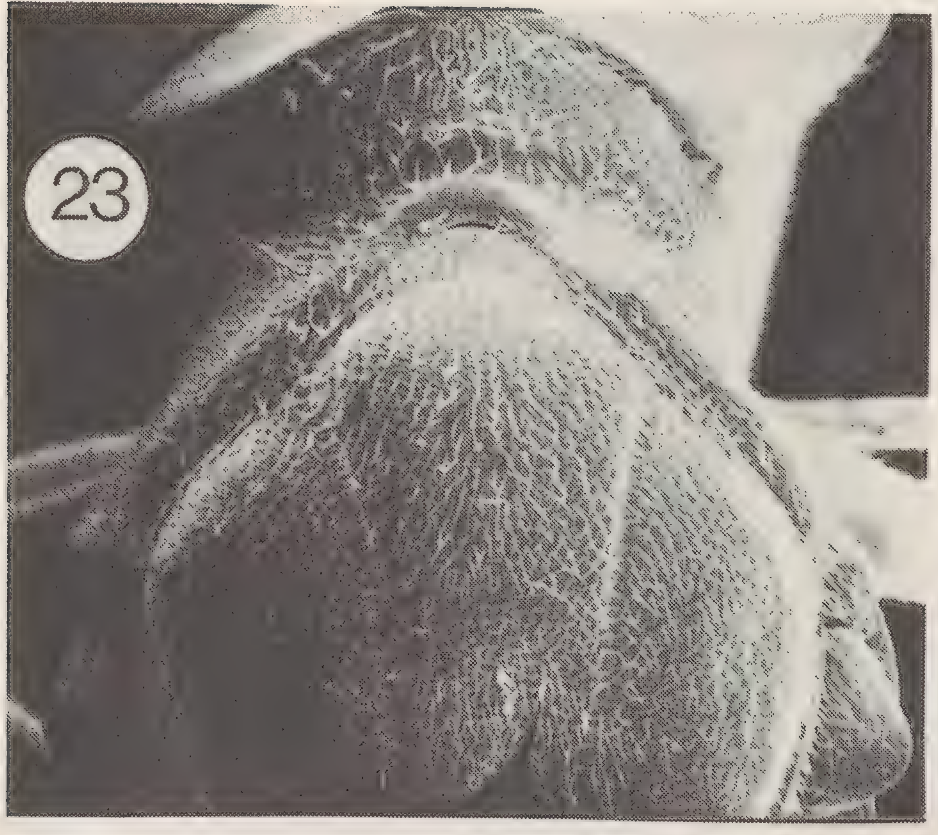
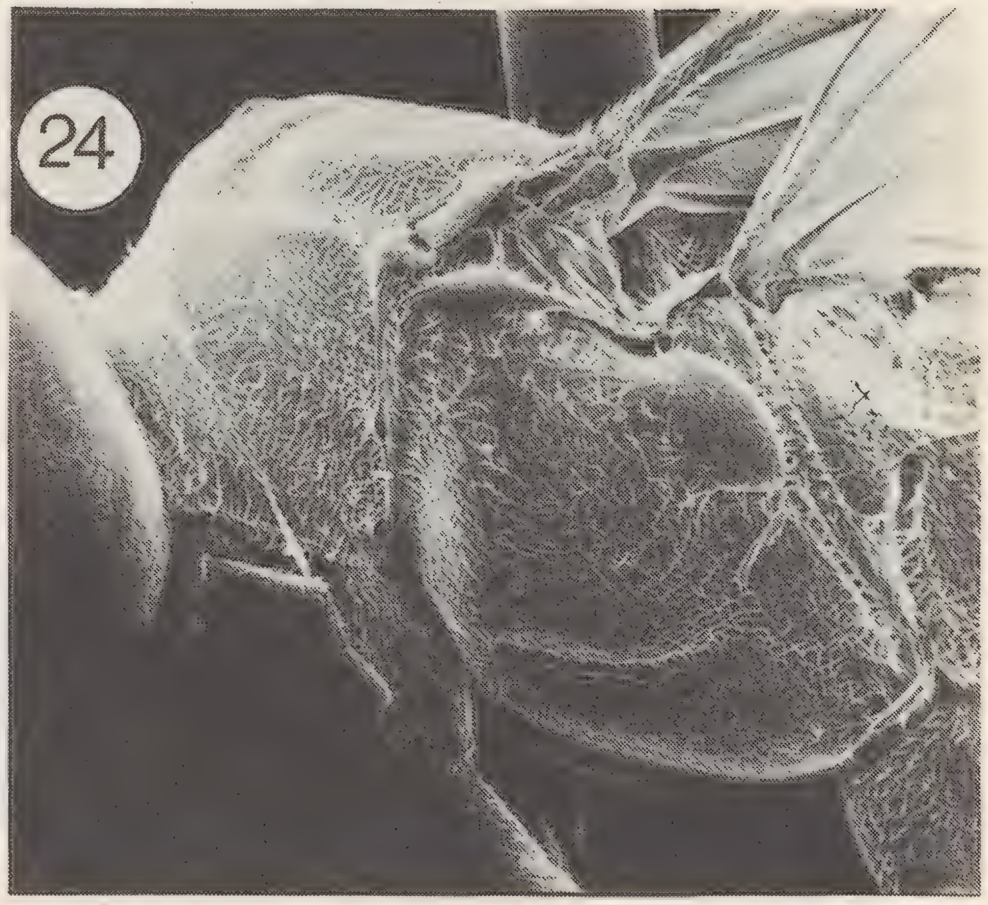
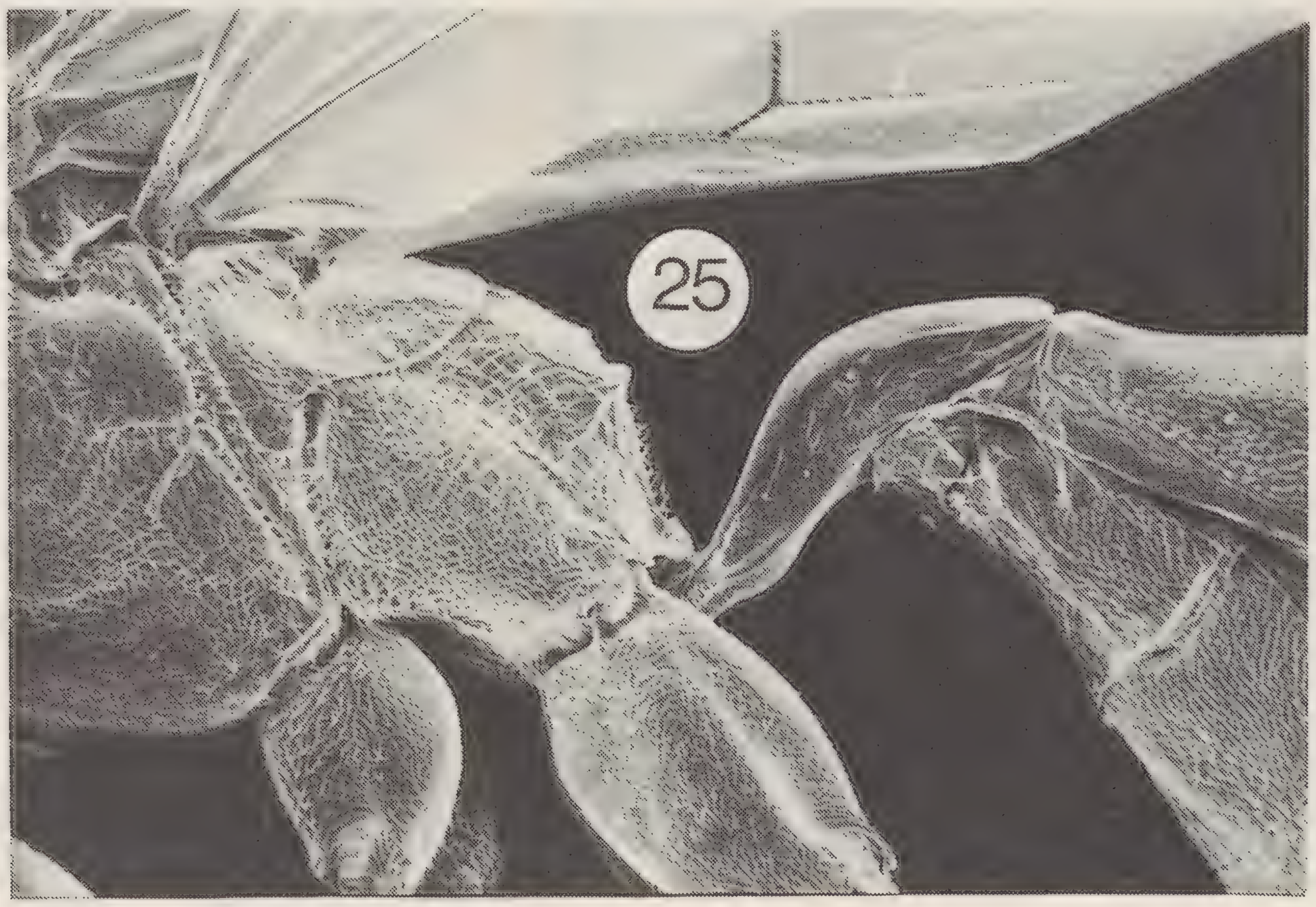
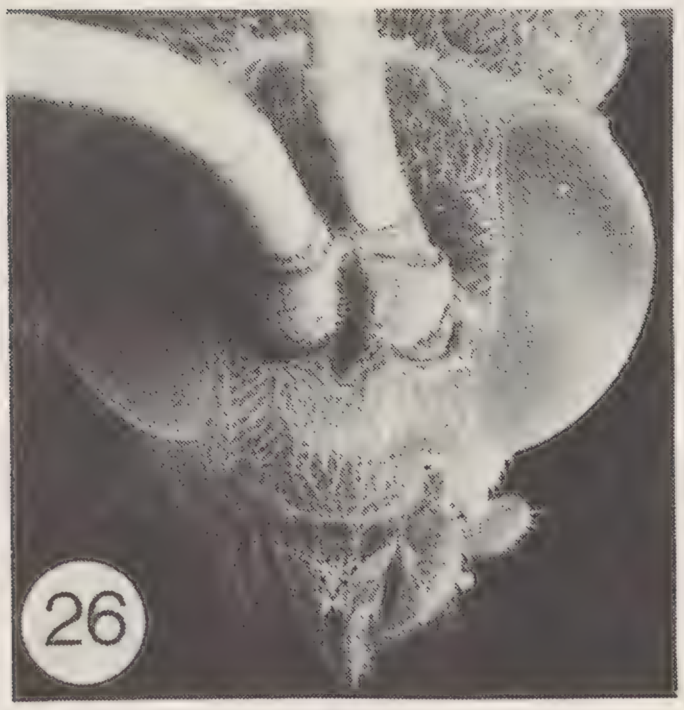


PLATE III. 17-19. Dotocryptus bellicosus. 20. D. pedisequus. 21. Xiphonychidion viduum. 22. Xiphonychidion cyanipenne.









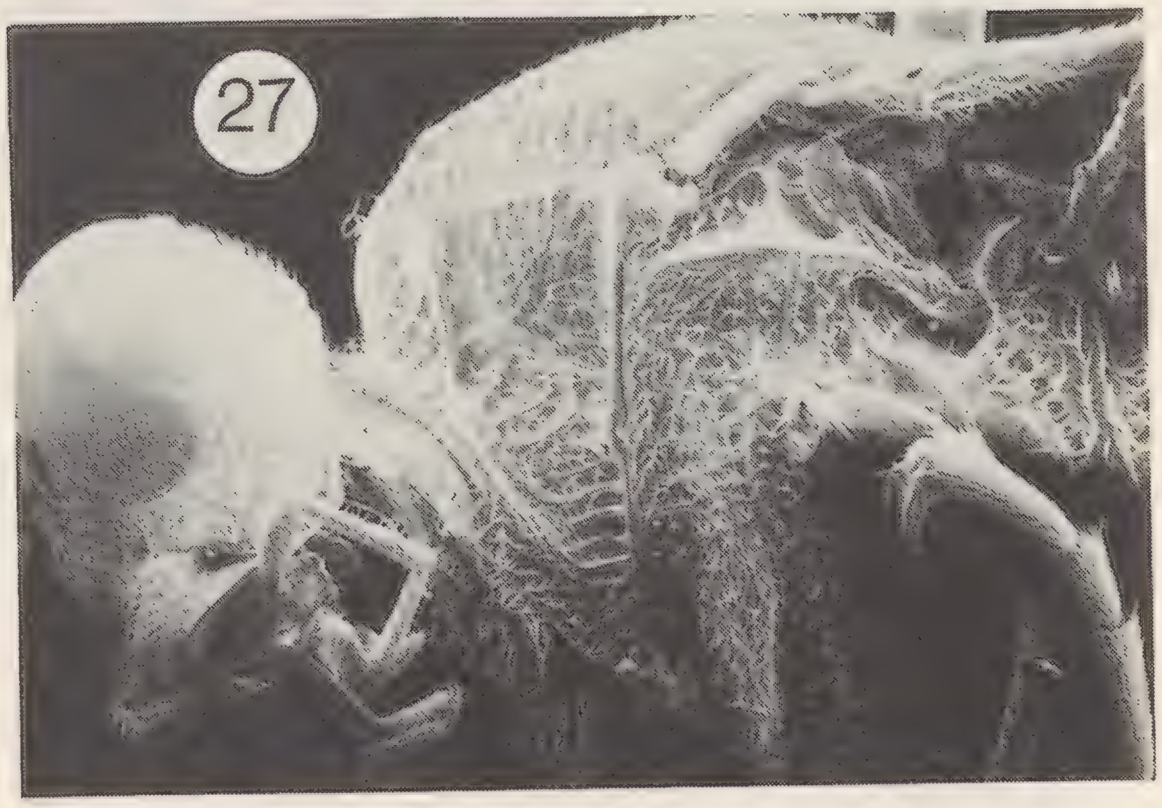


PLATE IV. 23-25. Cyclaulus sp. 26-27. Xiphonychidion cyanipenne.

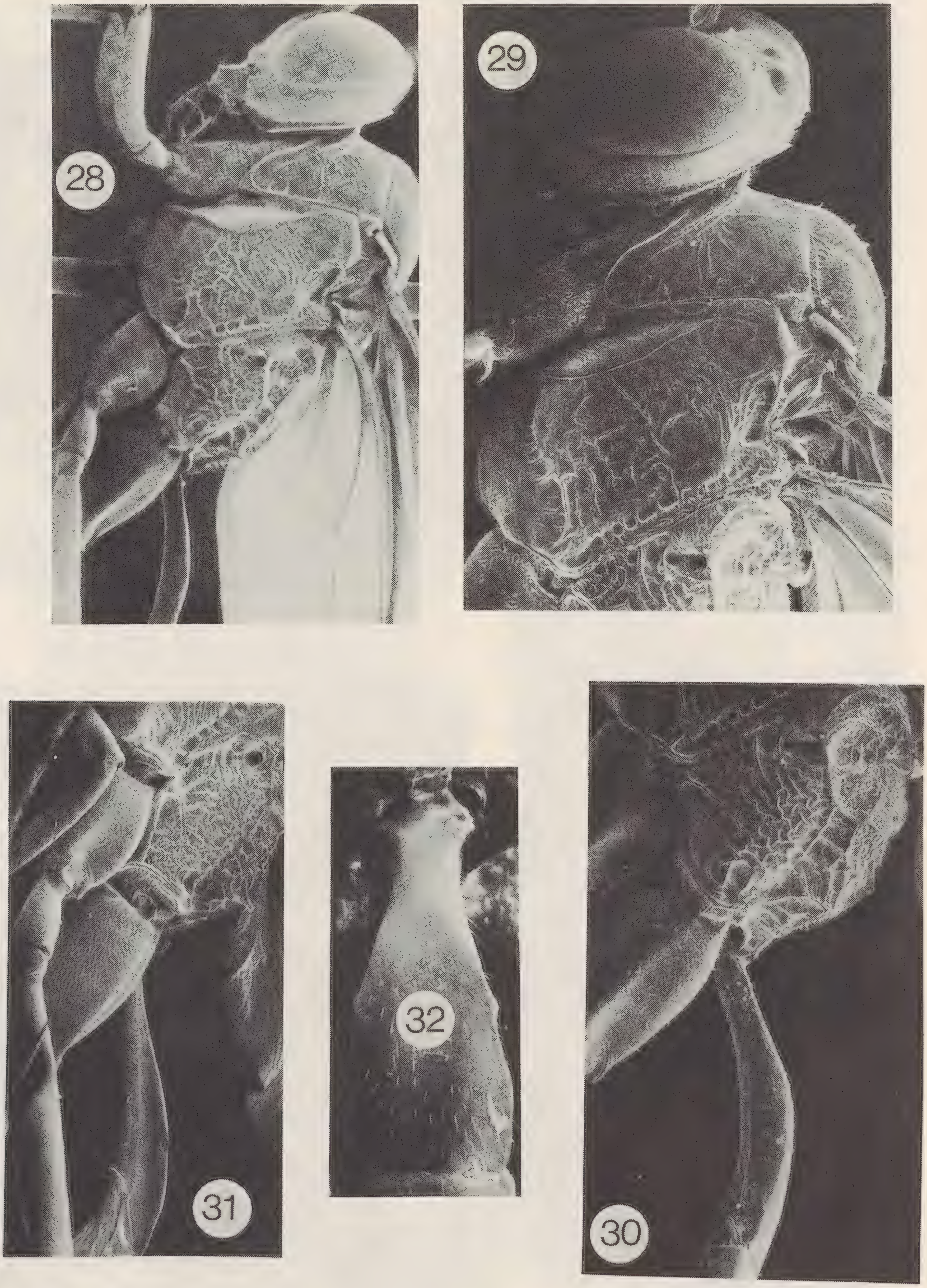


PLATE V. 28-30. Dotocryptus pedisequus. 31. D. bellicosus. 32. Xiphonychidion viduum.

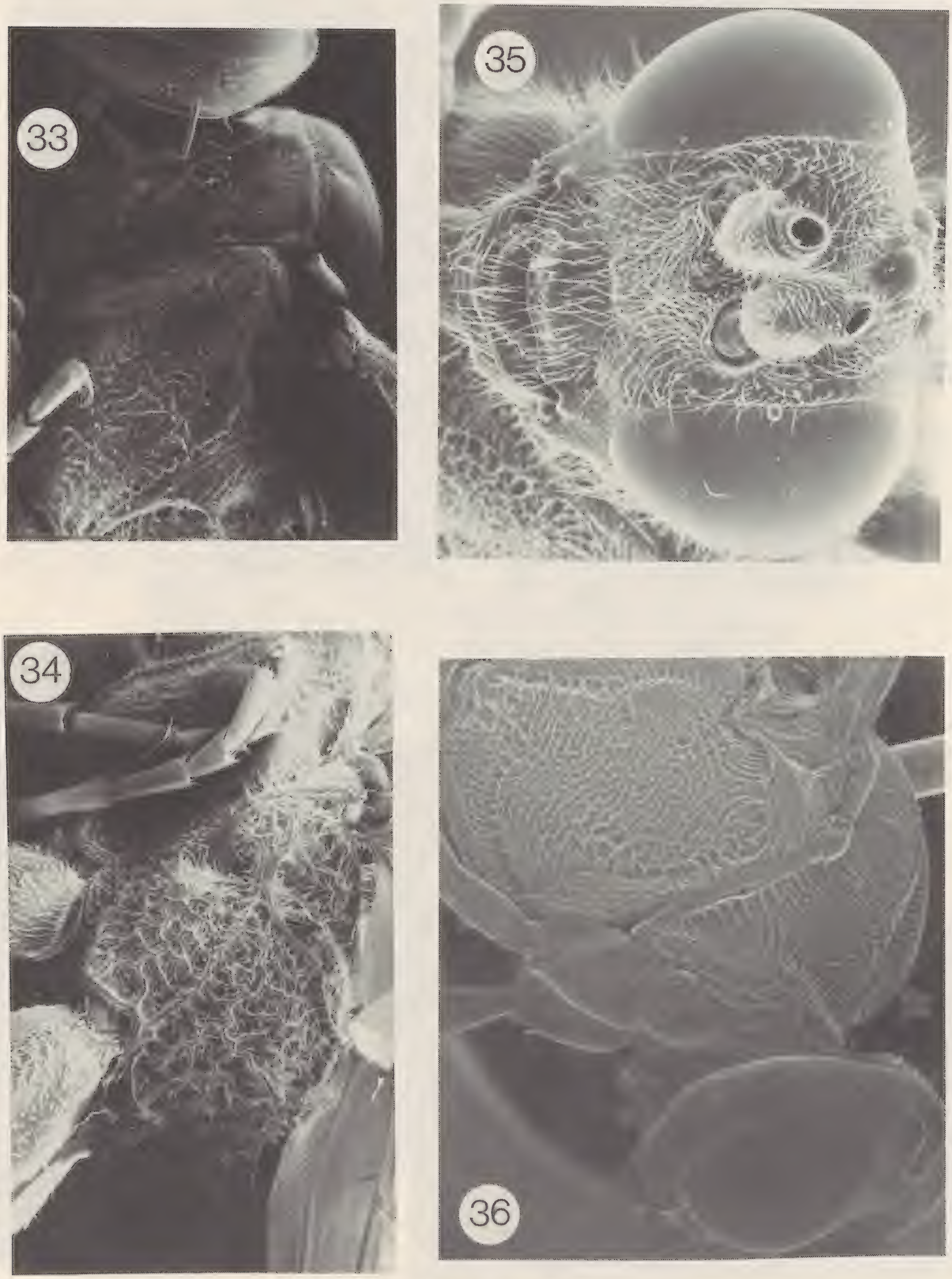


PLATE VI. 33. Xiphonychidion viduum. 34. X. cyanipenne. 35-36. Sciocryptus lachnaeis.

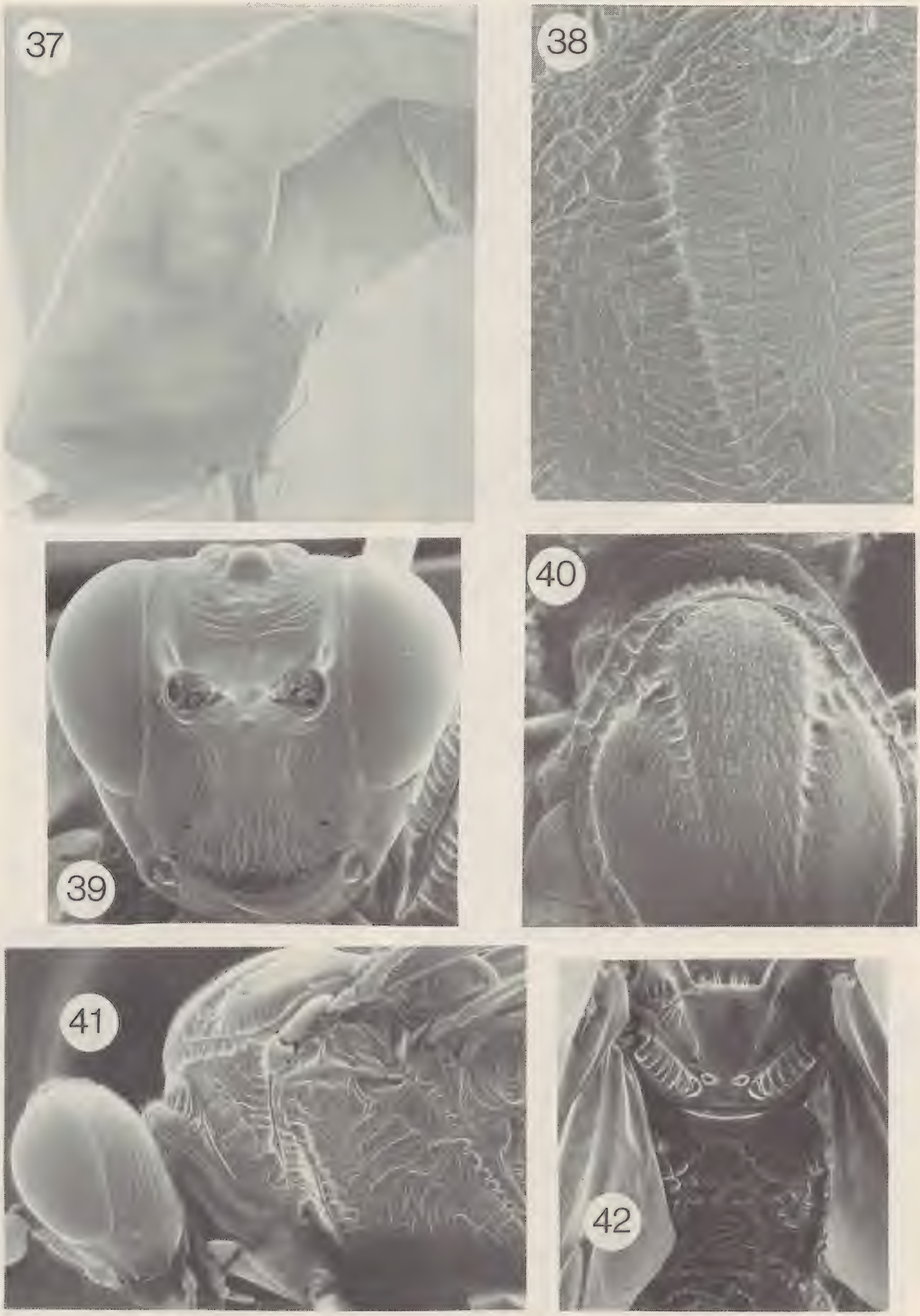


PLATE VII. 37-38. Sciocryptus lachnaeis. 39-42. Trachysphyrus irinus.

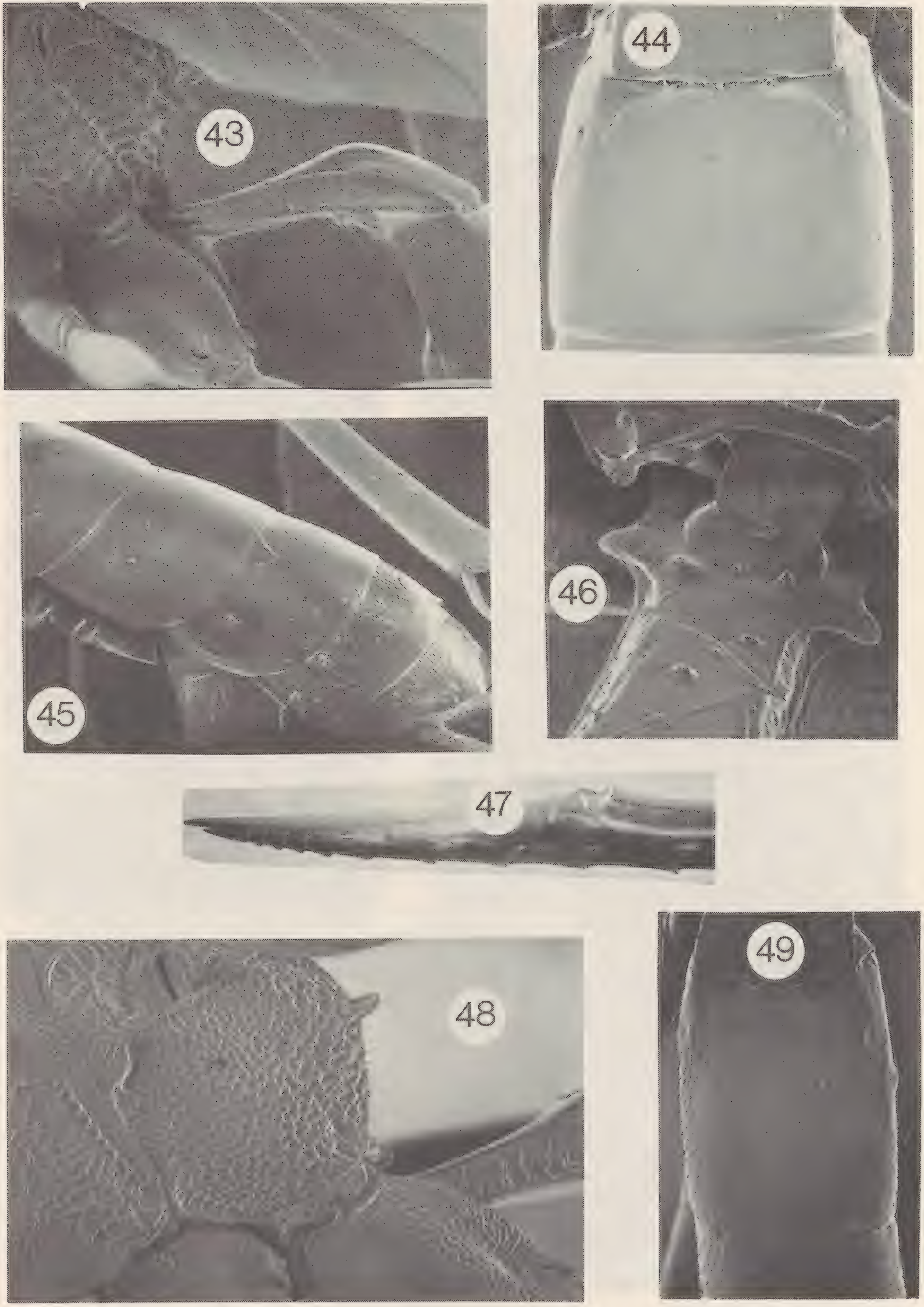


PLATE VIII. 43. Trachysphyrus irinus. 44. T. metallicus. 45. T. irinus. 46. Aeliopotes paitensis. 47. Trachysphyrus metallicus. 48. Aeglocryptus viridis. 49. Trachysphyrus aegla.

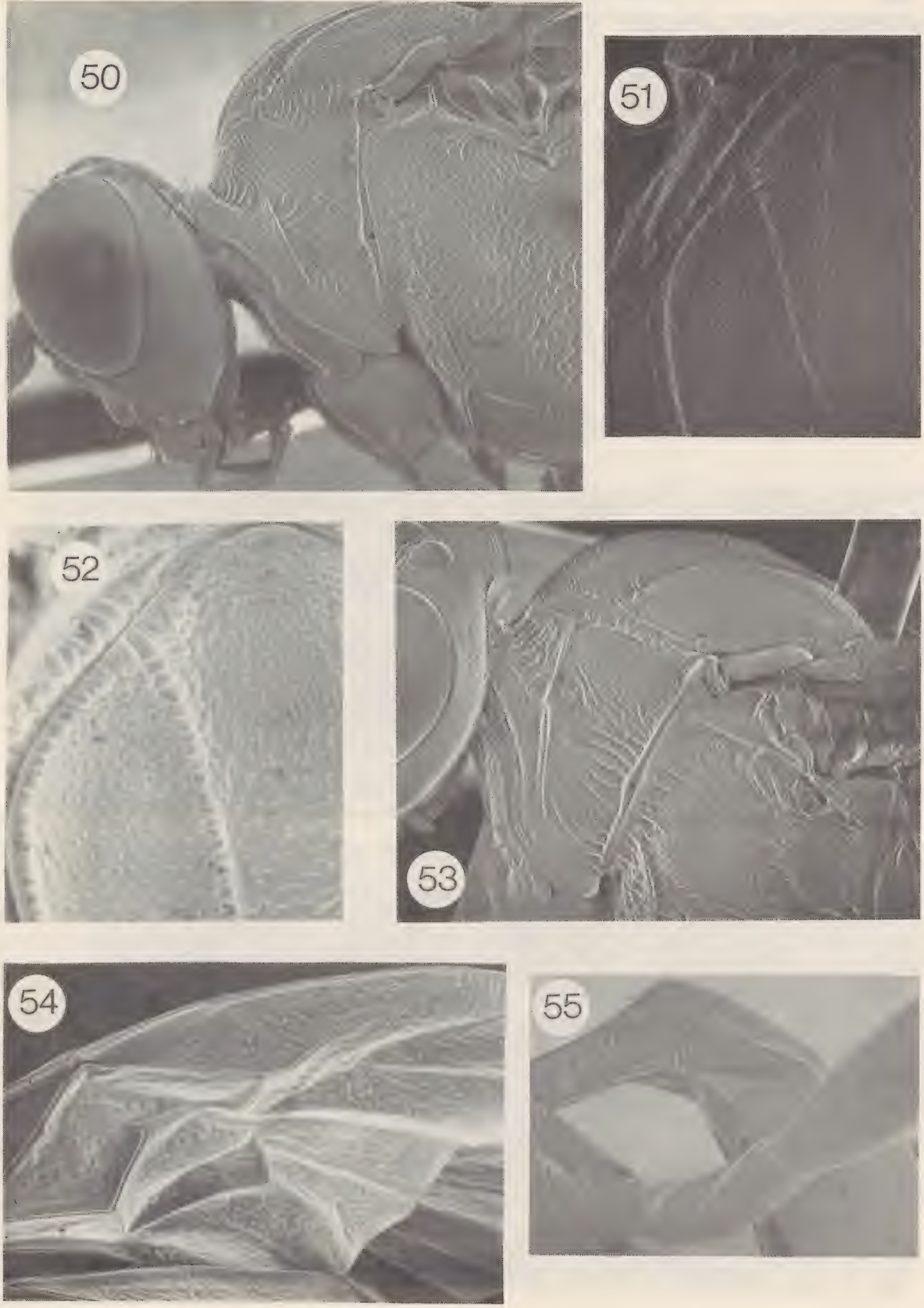


PLATE IX. 50. Aeglocryptus viridis. 51. Aeliopotes paitensis. 52. Aeglocryptus viridis. 53. Aeliopotes paitensis 54. Aglaodina cribricollis. 55. Aeglocryptus viridis.

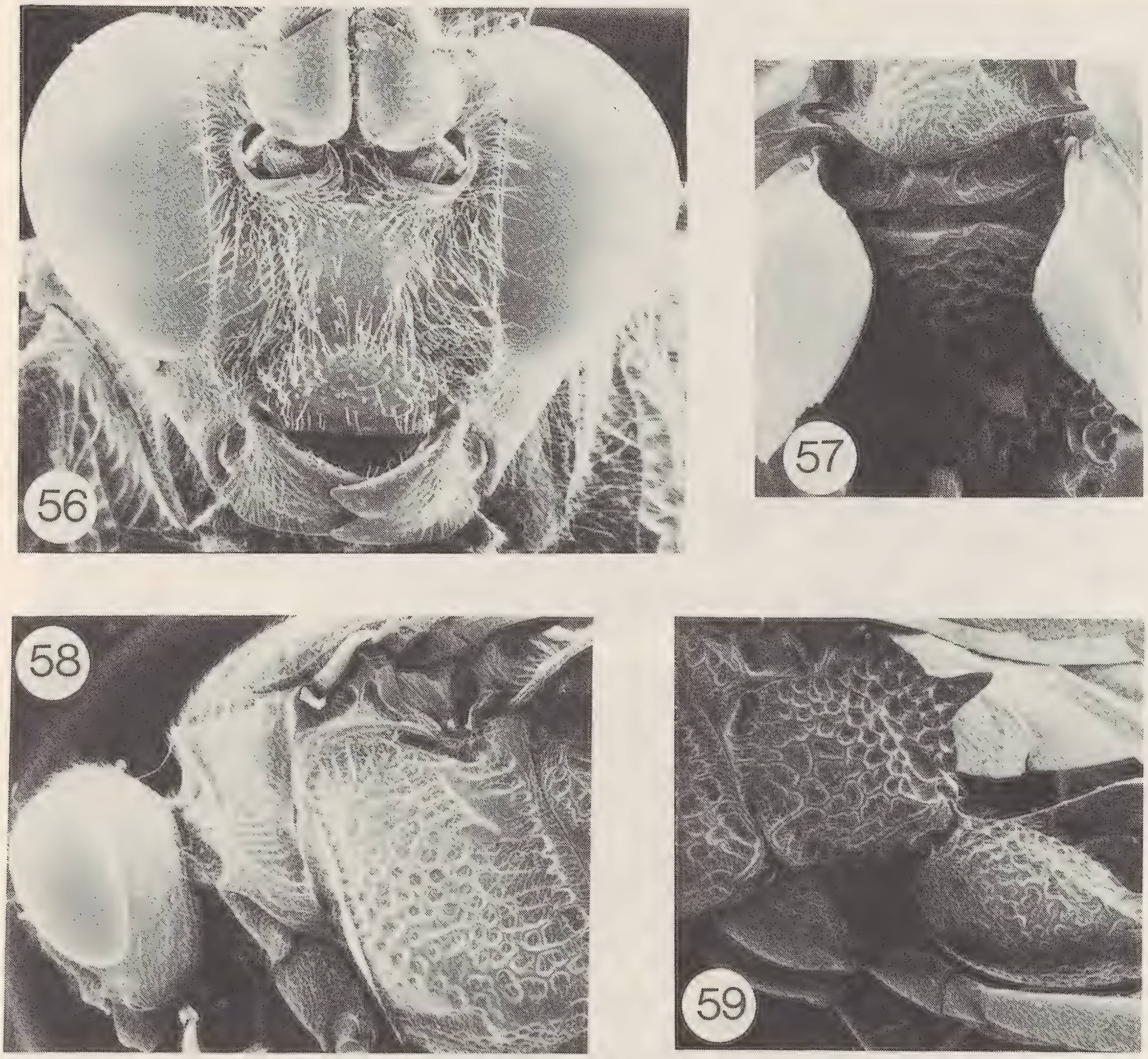
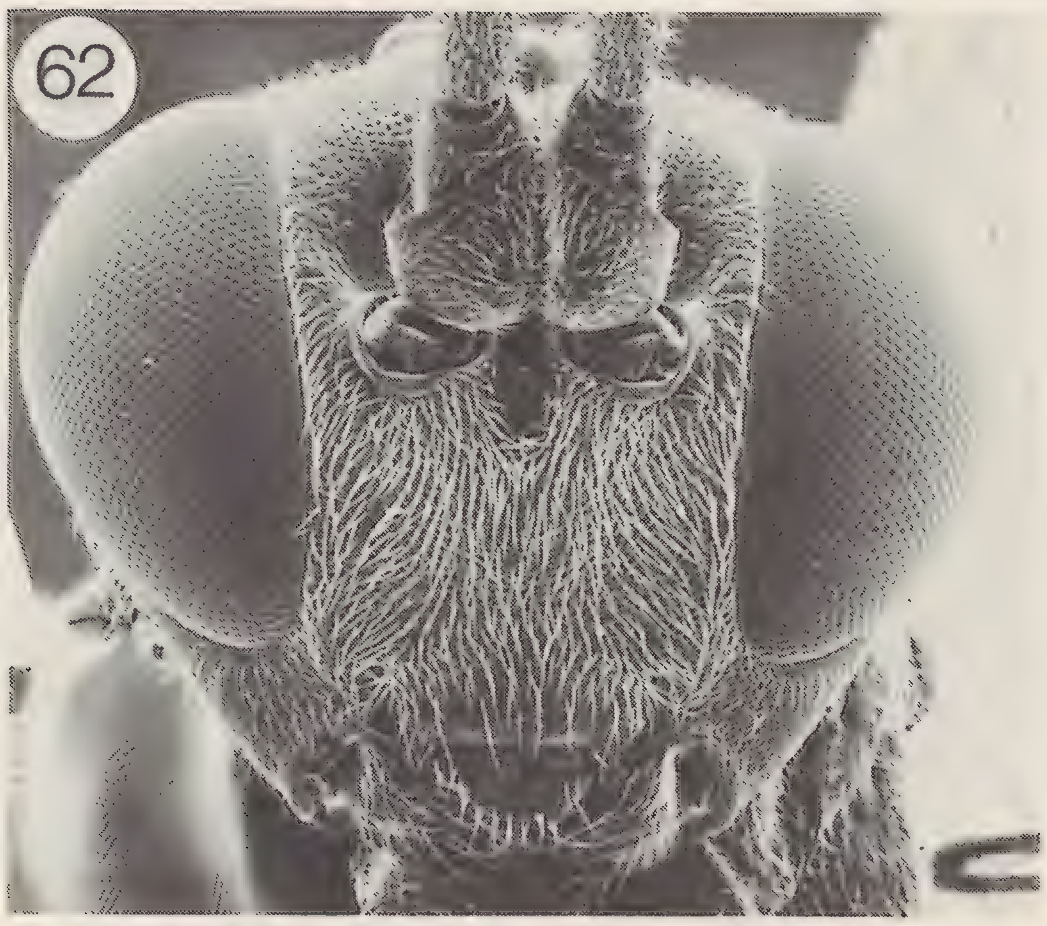


PLATE X. 56-60. Aglaodina cribricollis. 61. Dochmidium sp.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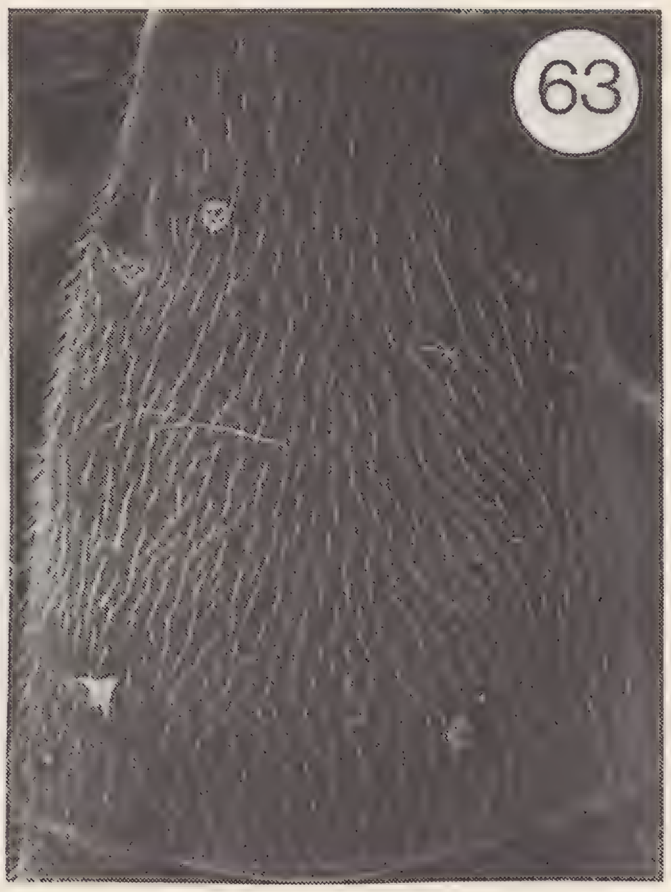
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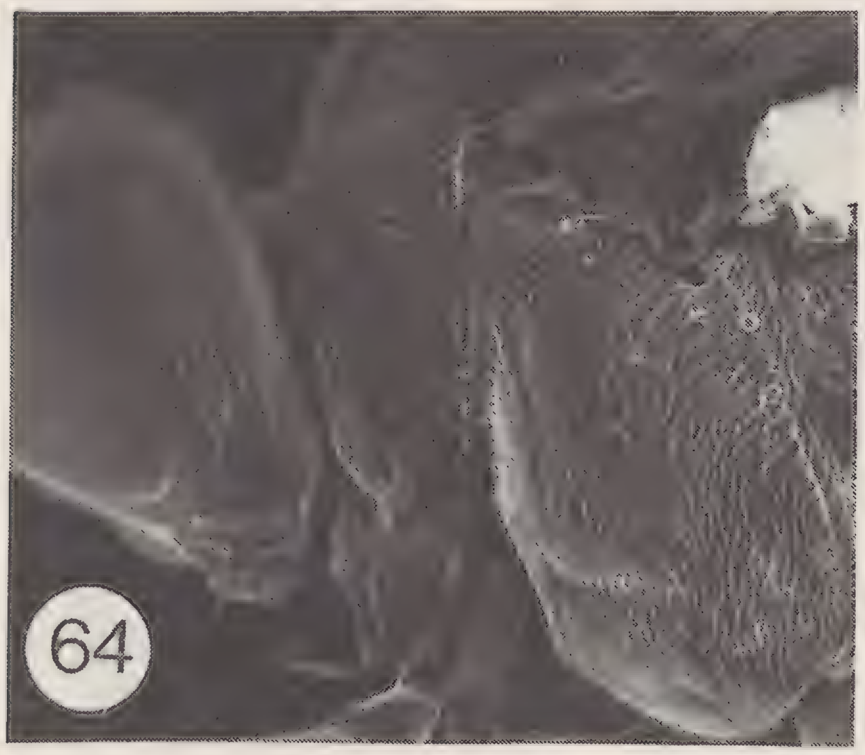
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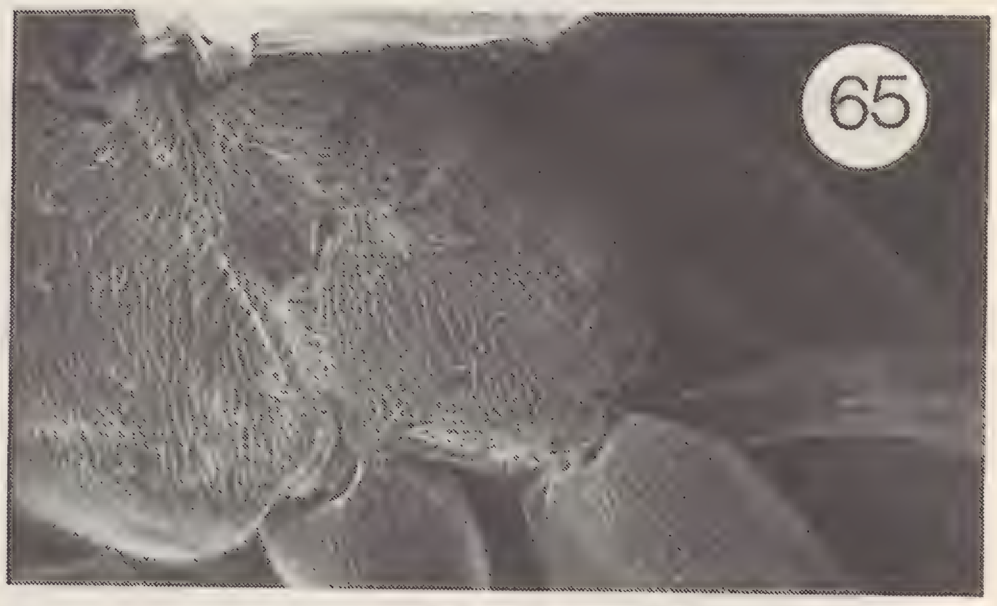
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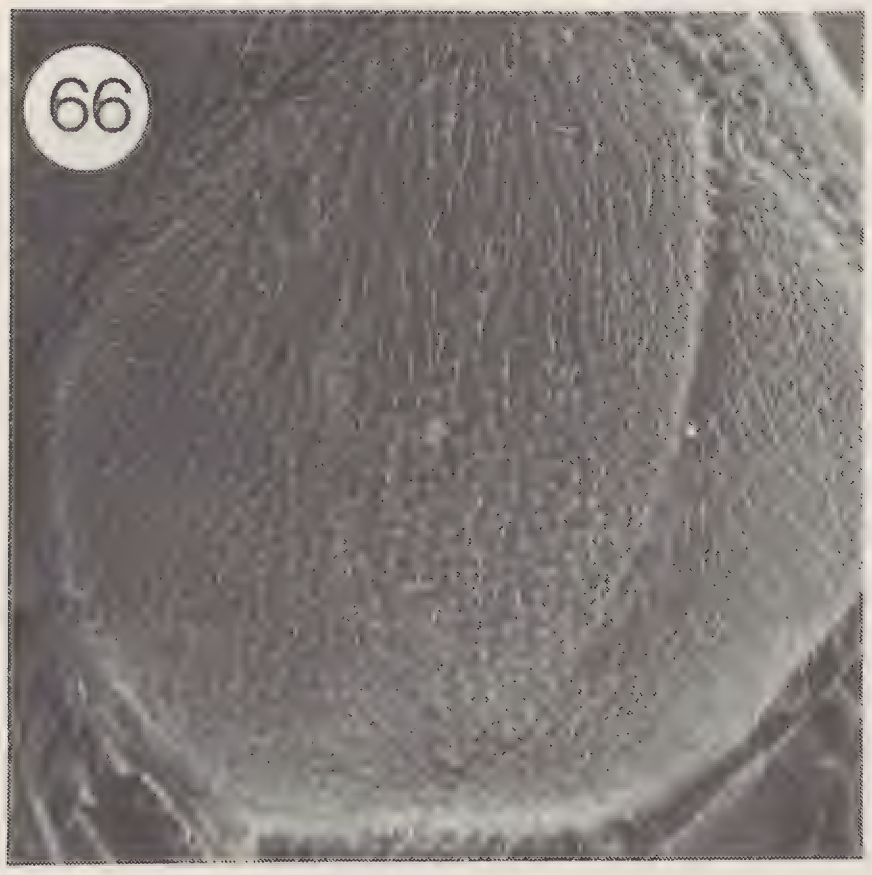
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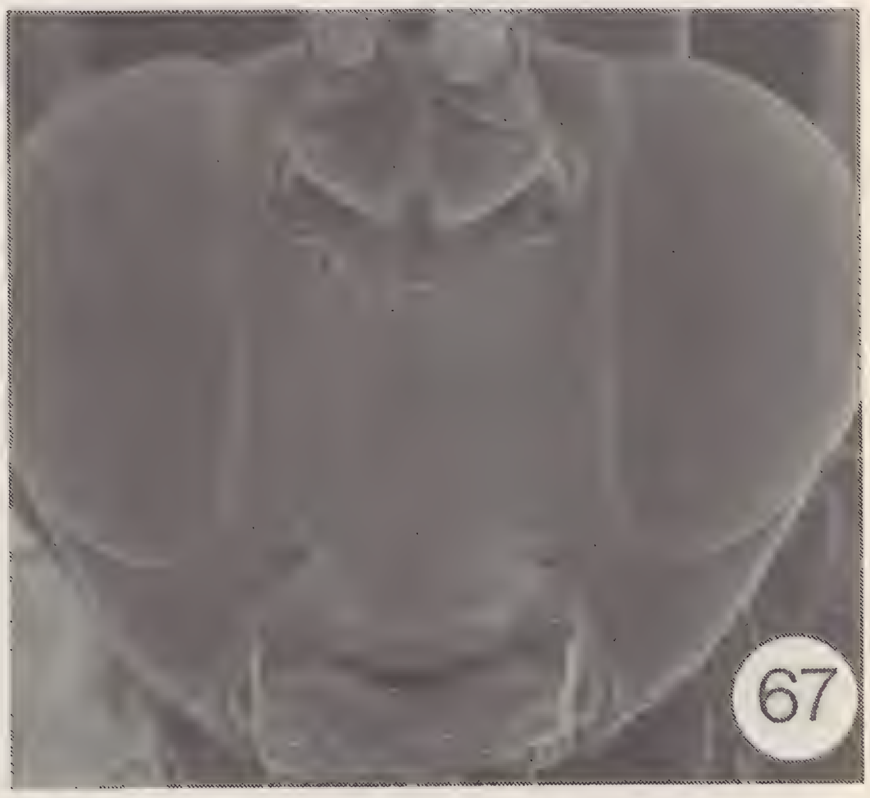
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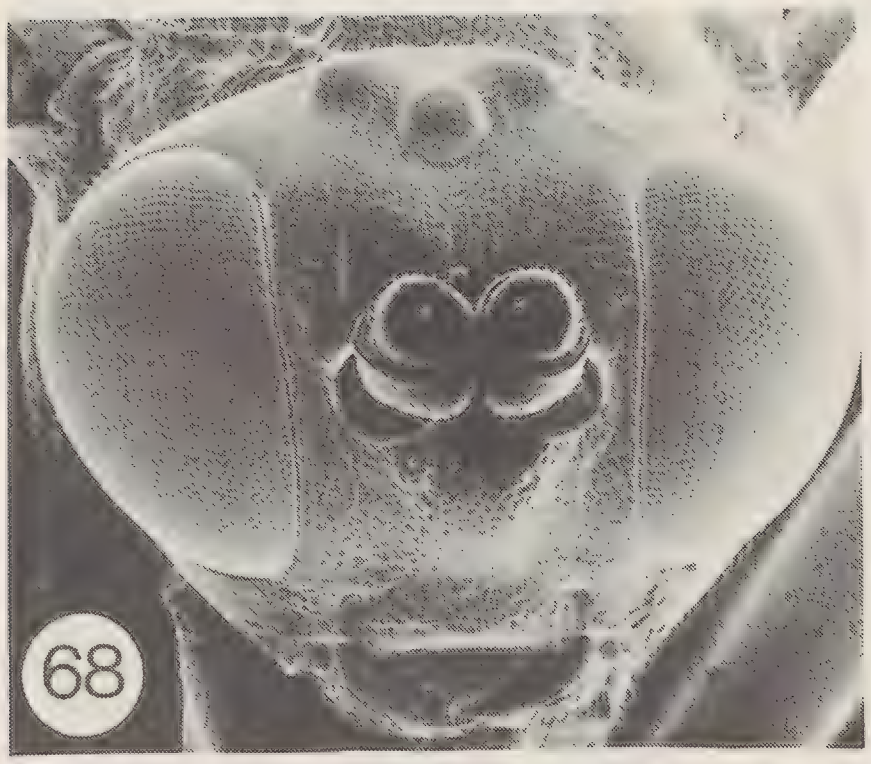
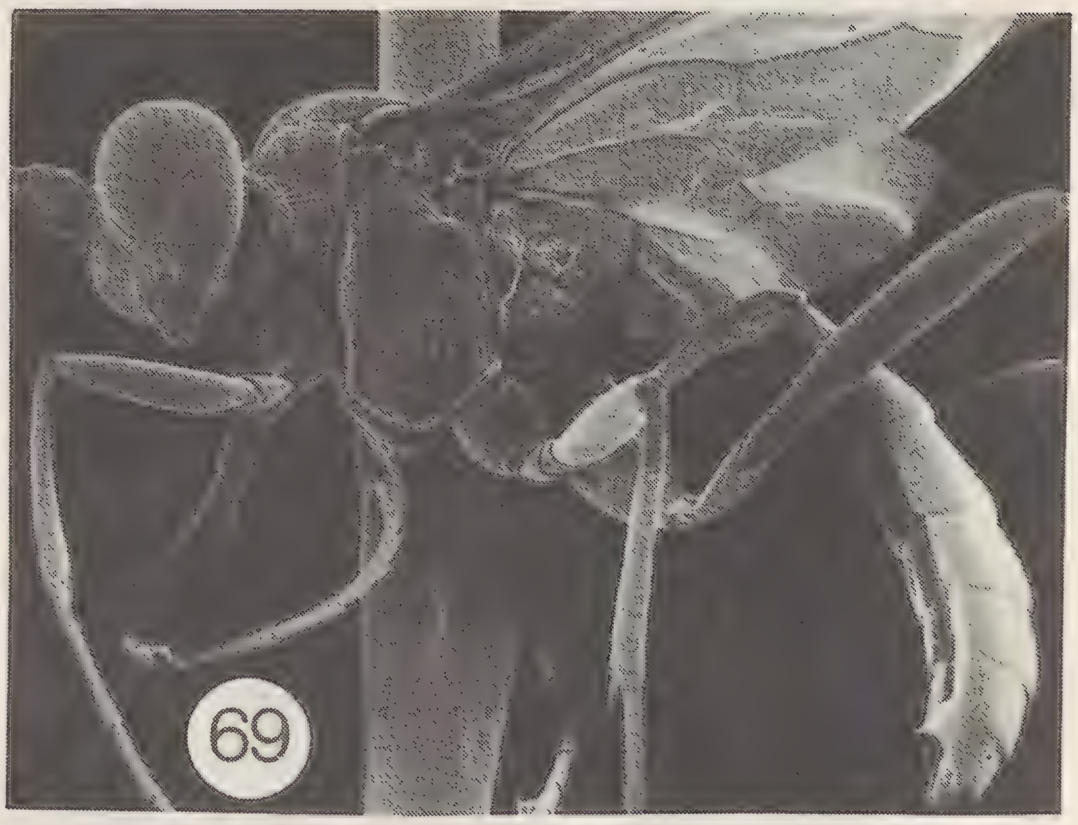
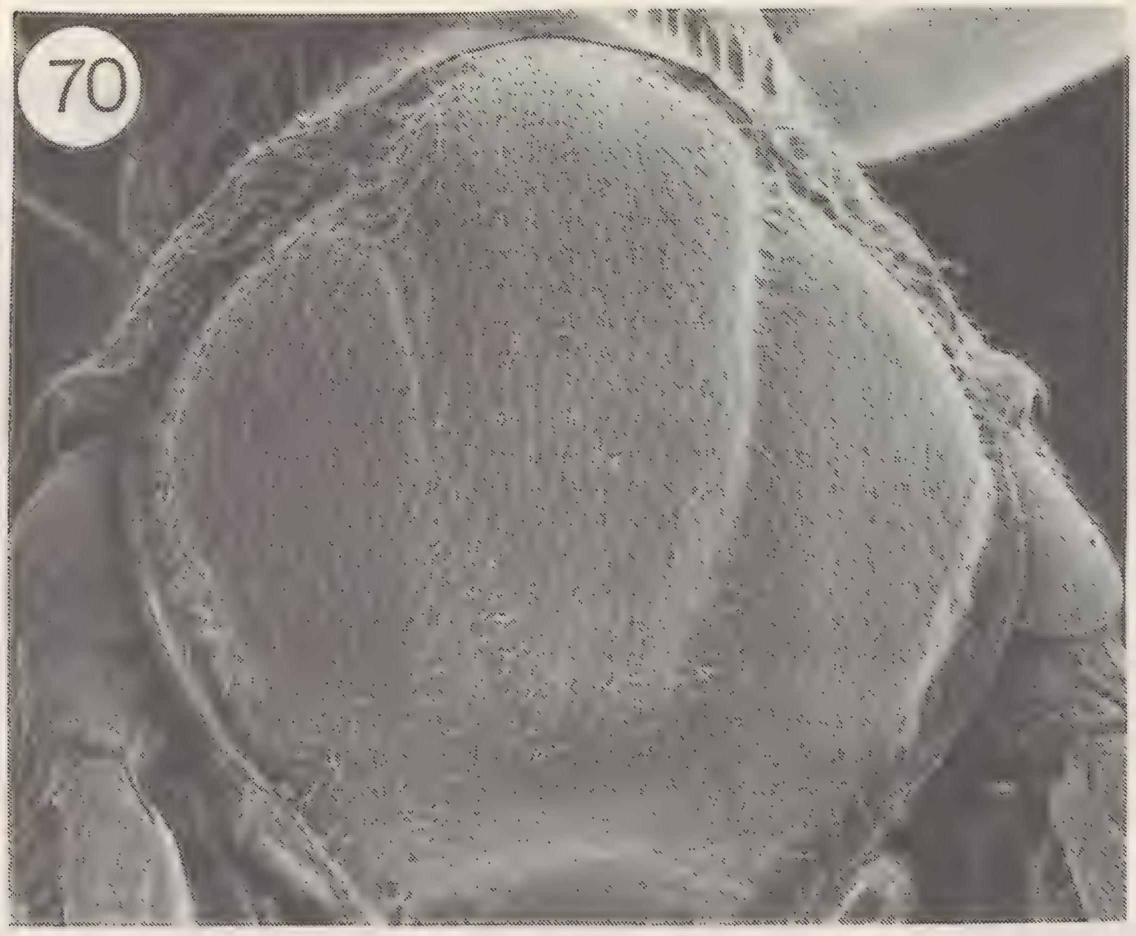
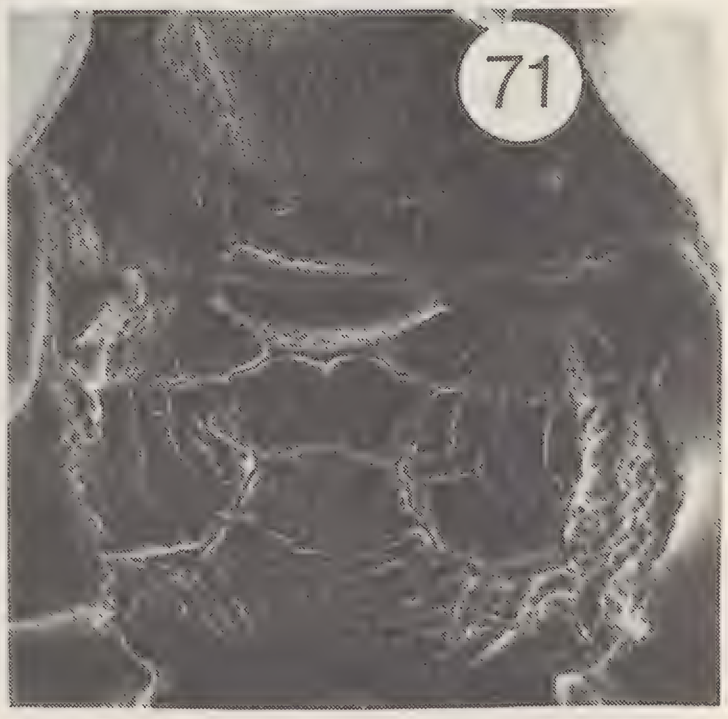
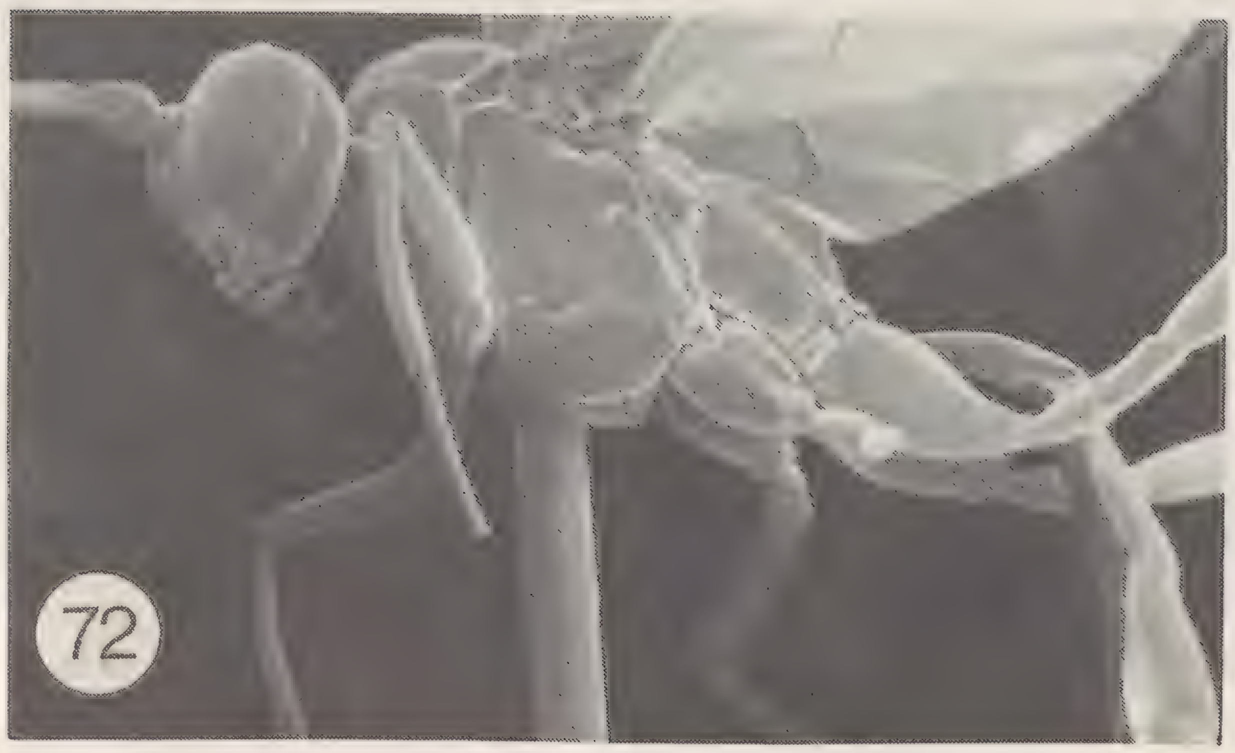
PLATE XI. 62-66. Dochmidium sp. 67. Anacis festiva.











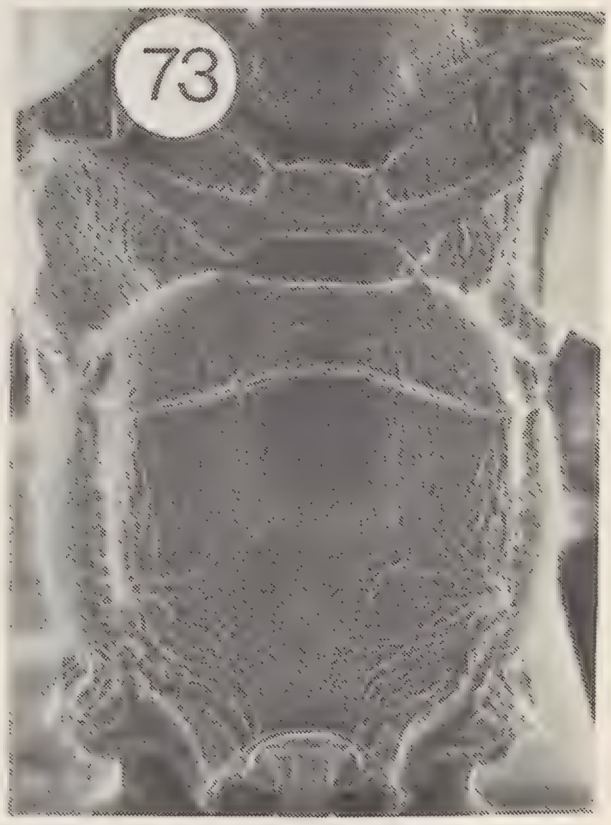
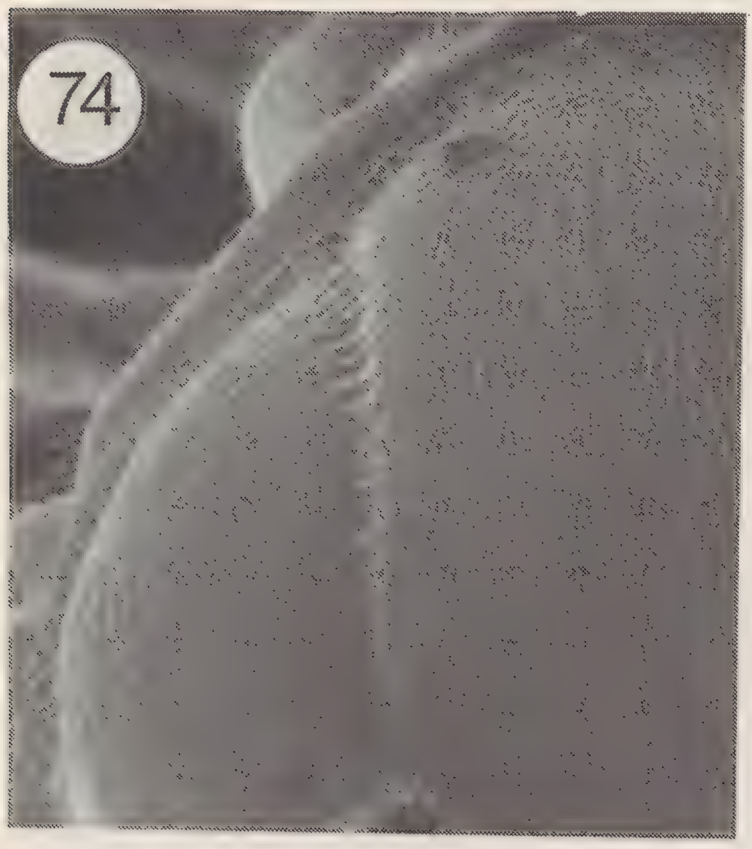
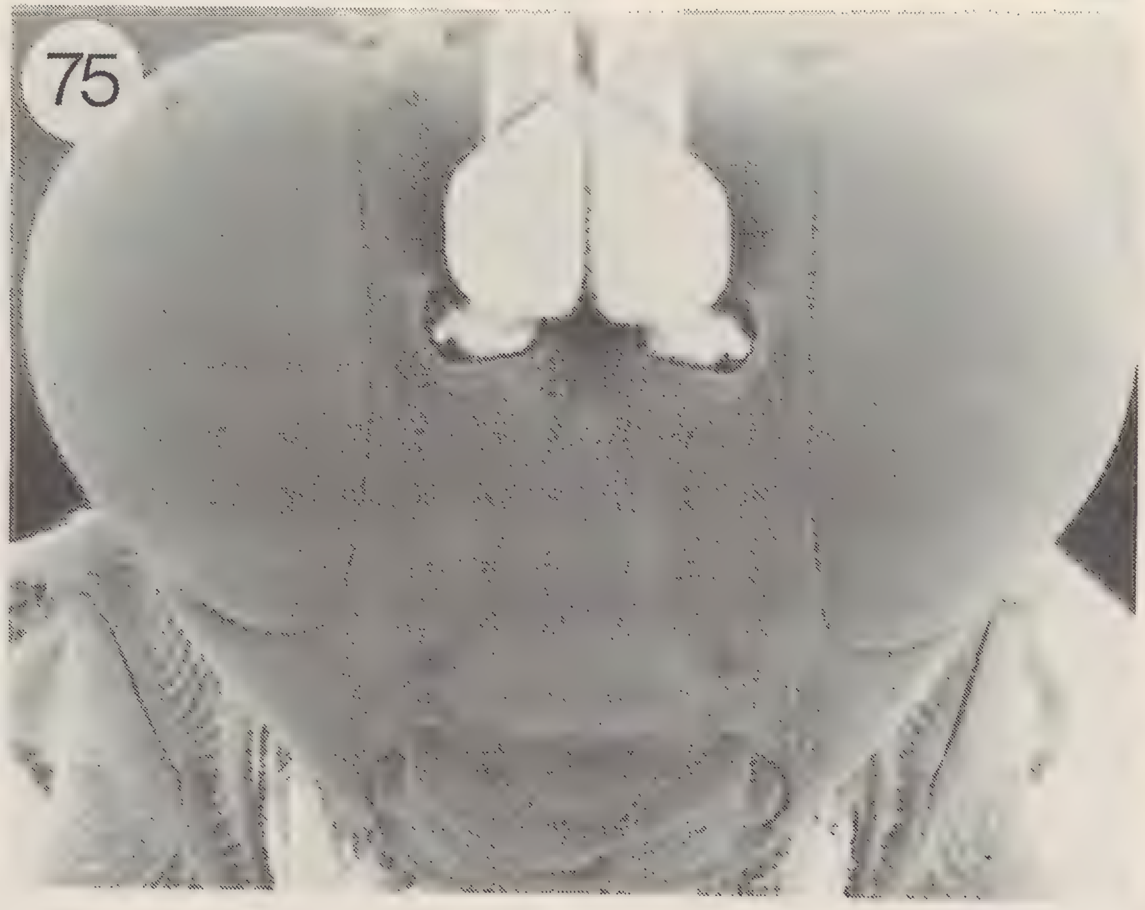
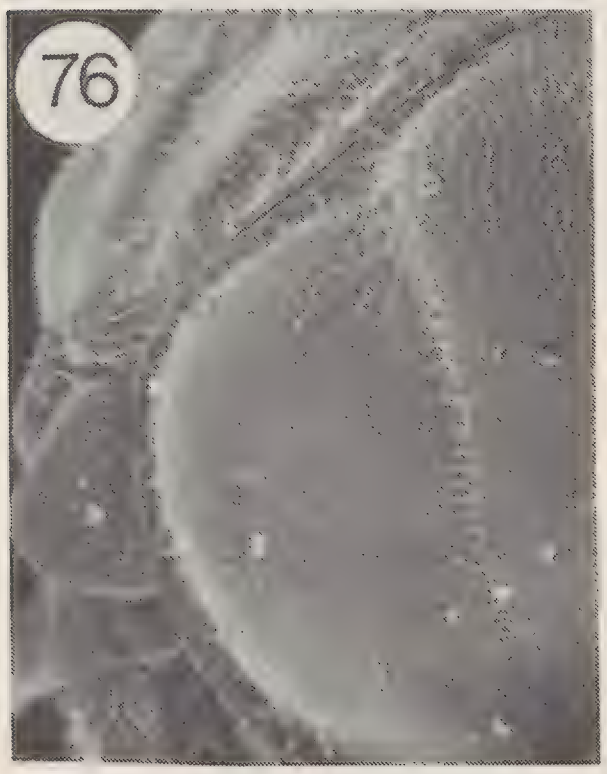
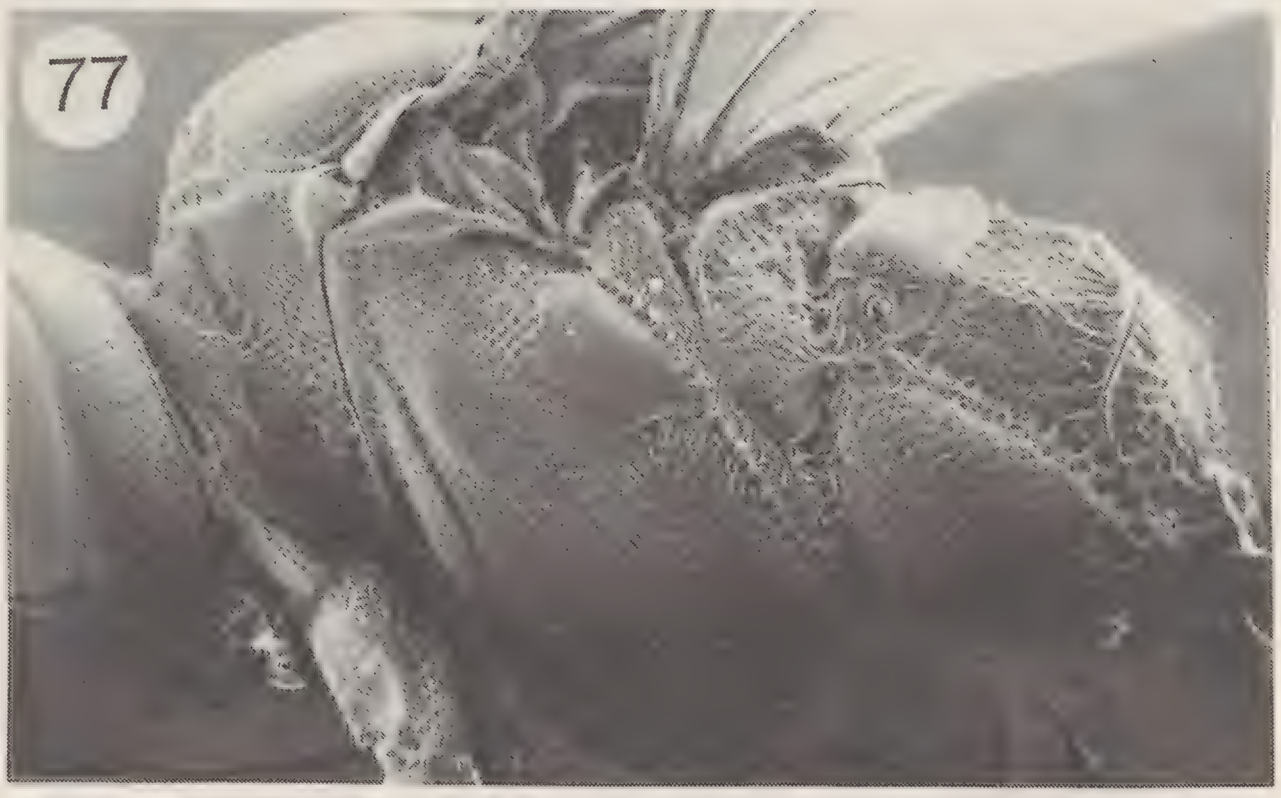


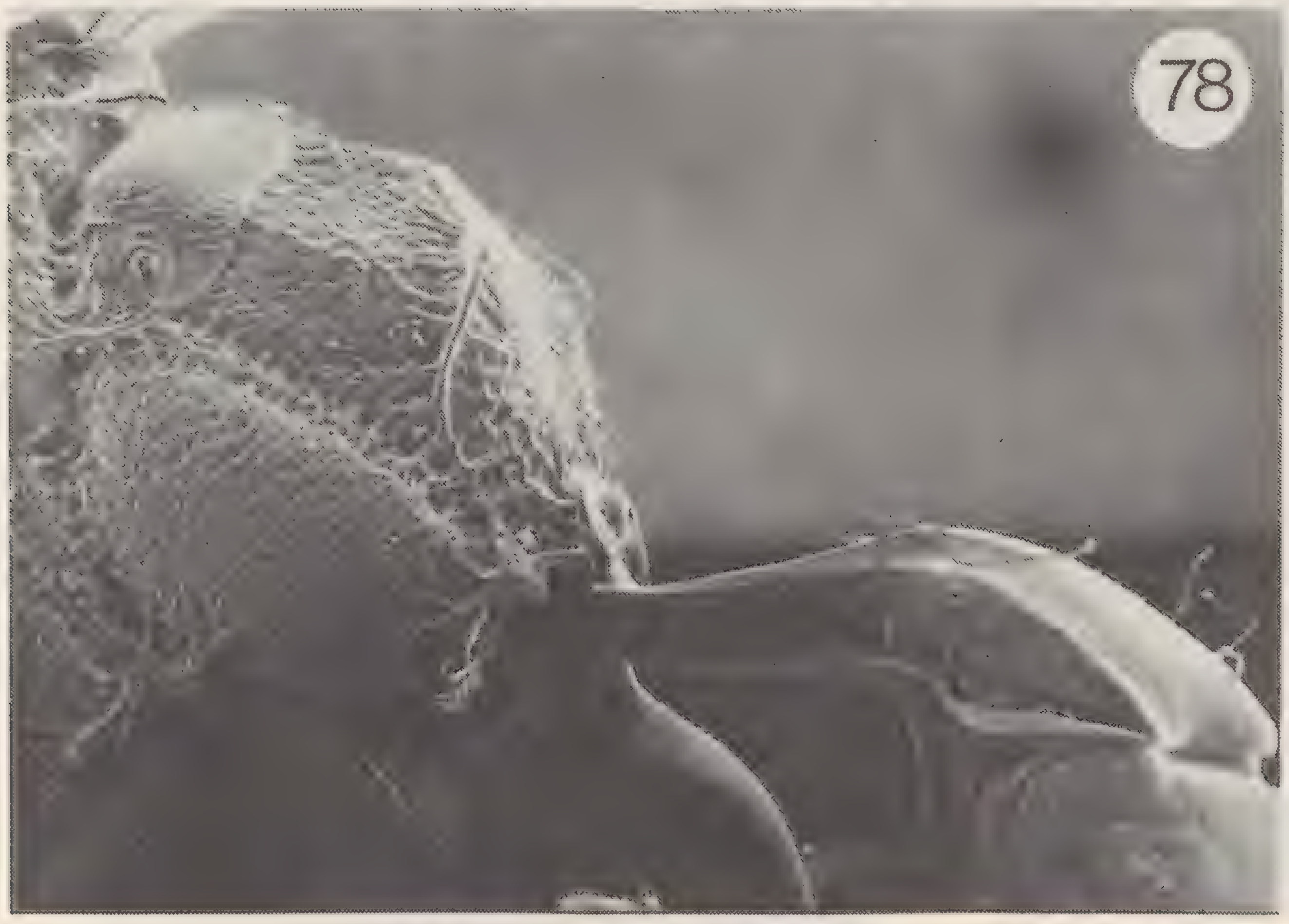
PLATE XII. 68-71. Caenopelte palinorsa. 72-73. Anacis festiva.











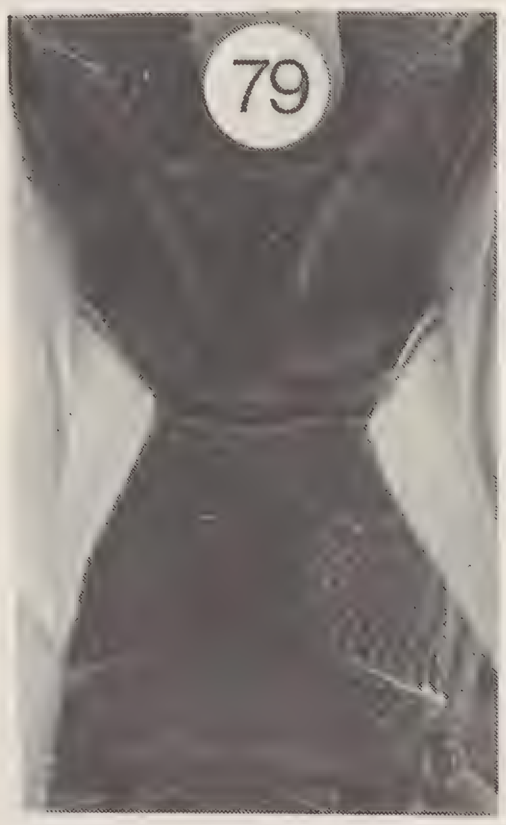
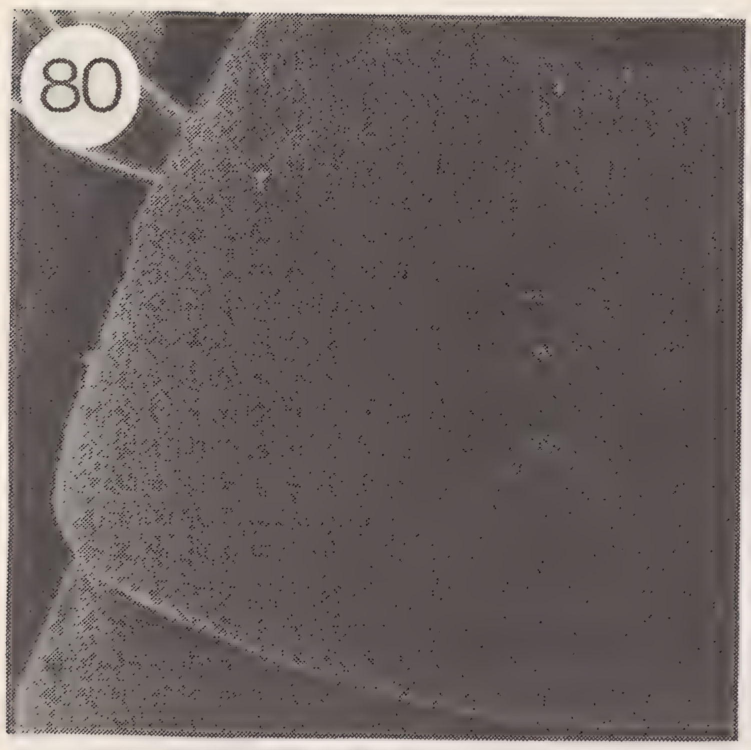
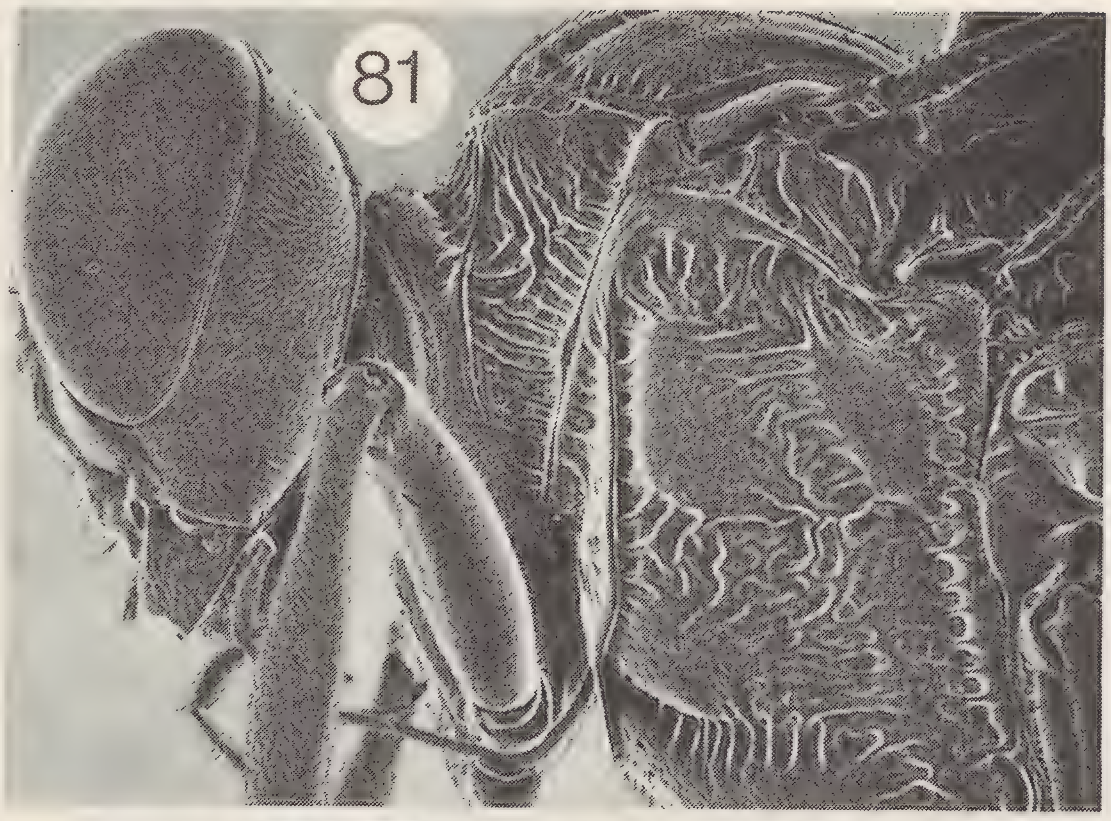
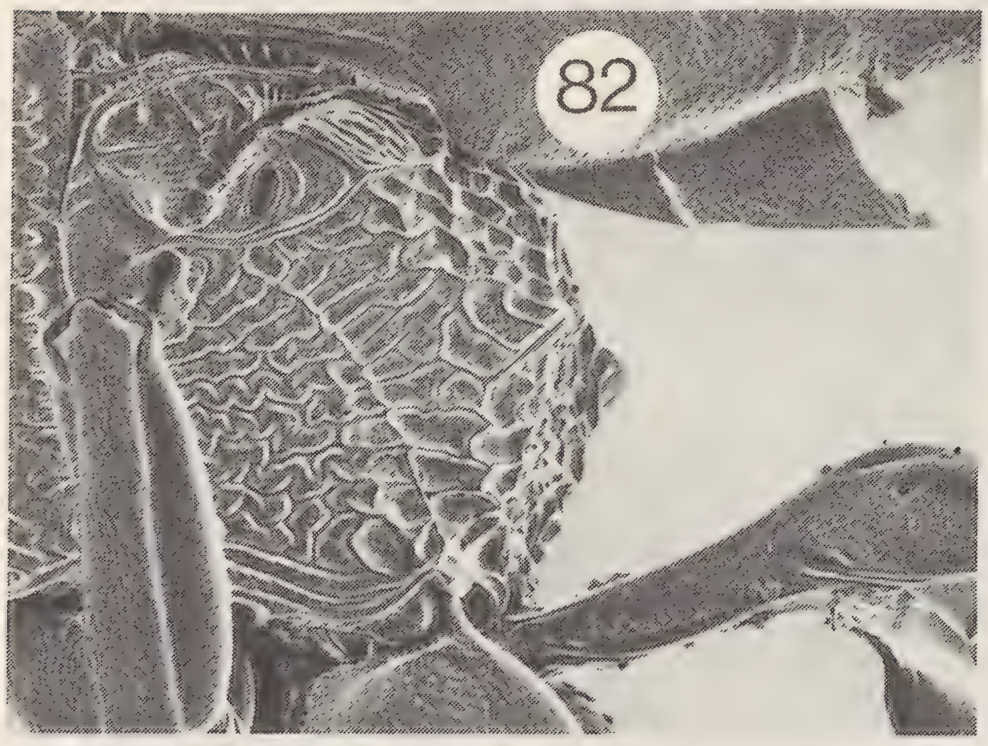
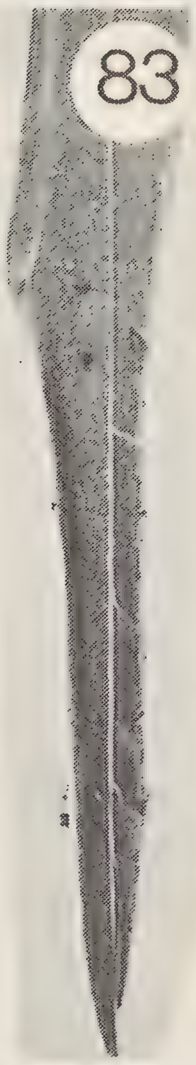


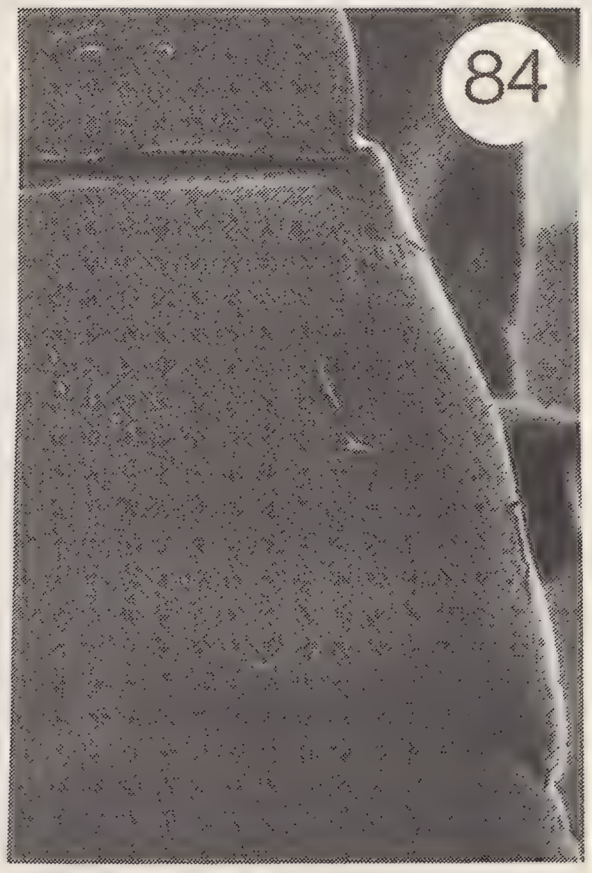
PLATE XIII. 74. Anacis festiva. 75-79. A. rubripes.

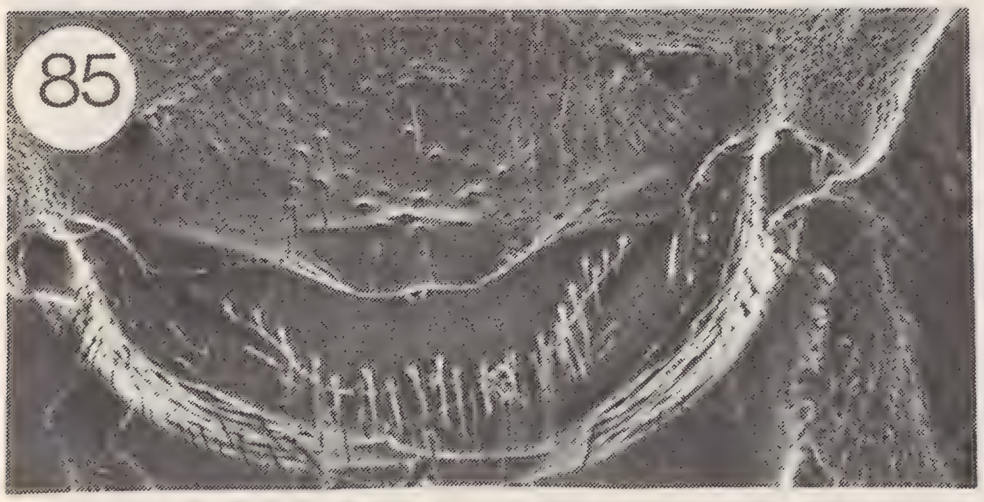


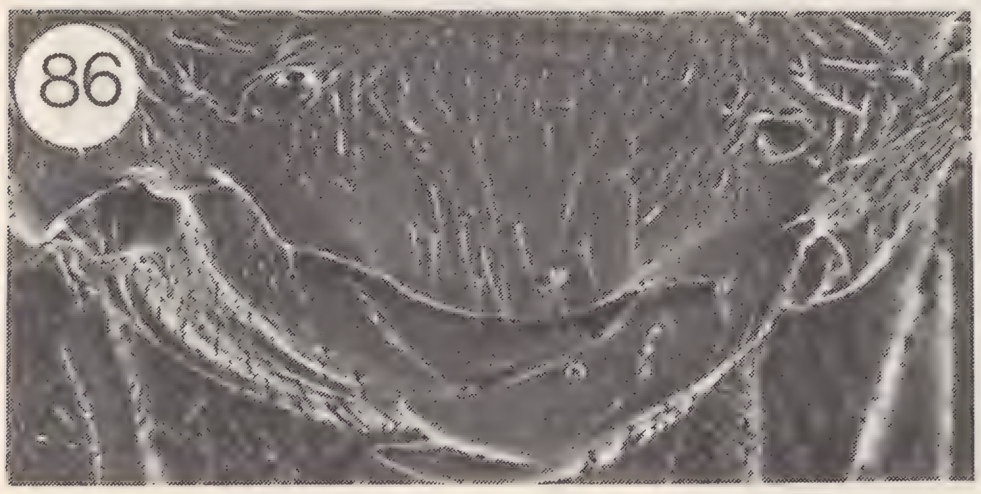












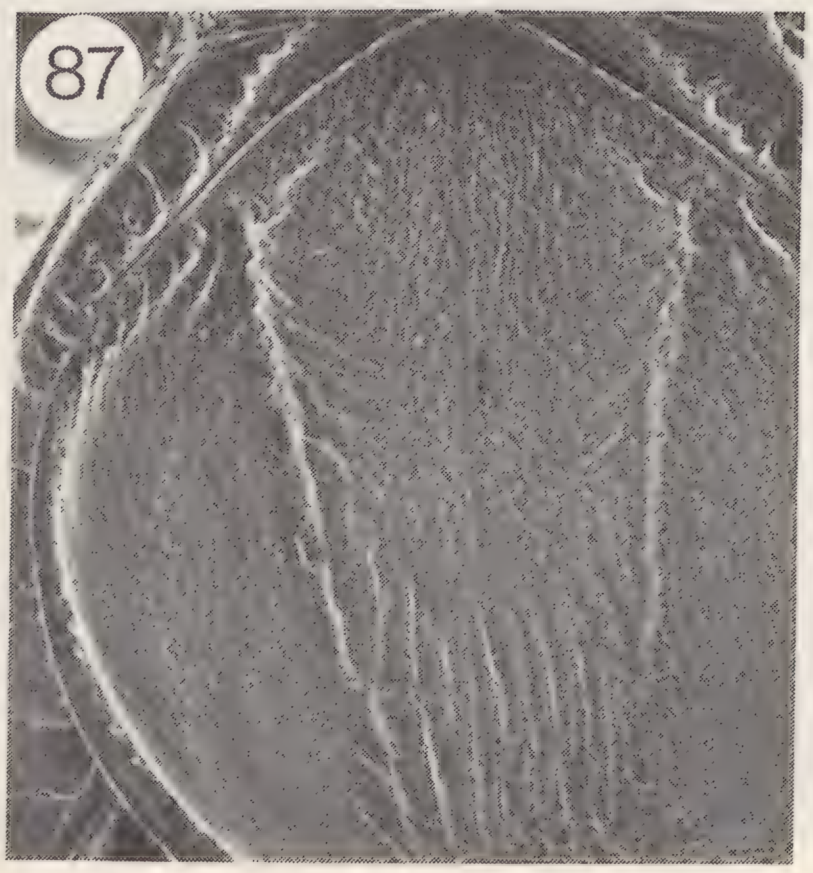


PLATE XIV. 80. Anacis rubripes. 81. Cosmiocryptus weyrauchi. 82. C. weyrauchi. 83. C. diplatys. 84-85. C. weyrauchi 86. C. diplatys. 87. C. violaceipennis.

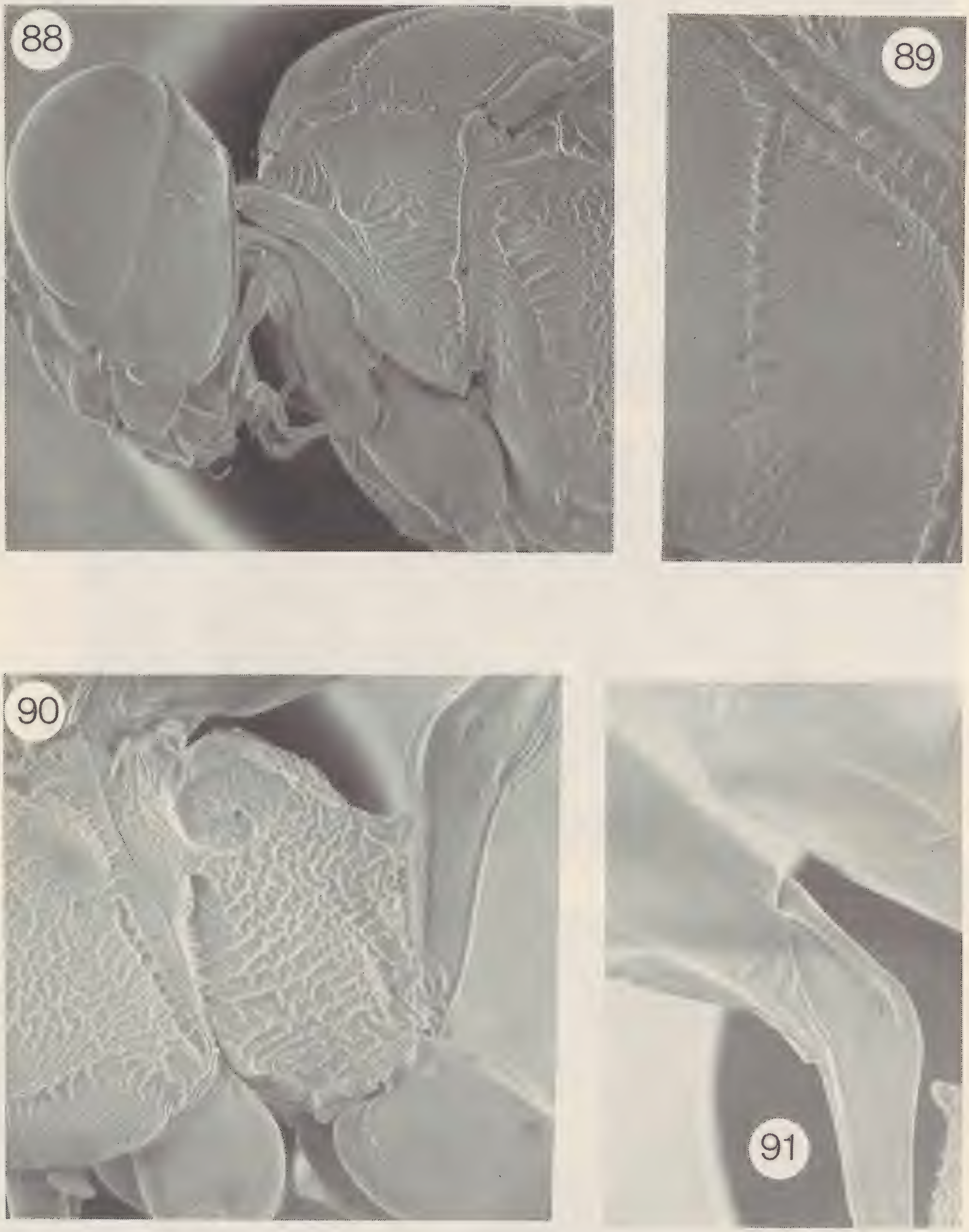


PLATE XV. 88-91. Chilecryptus rhadinus.

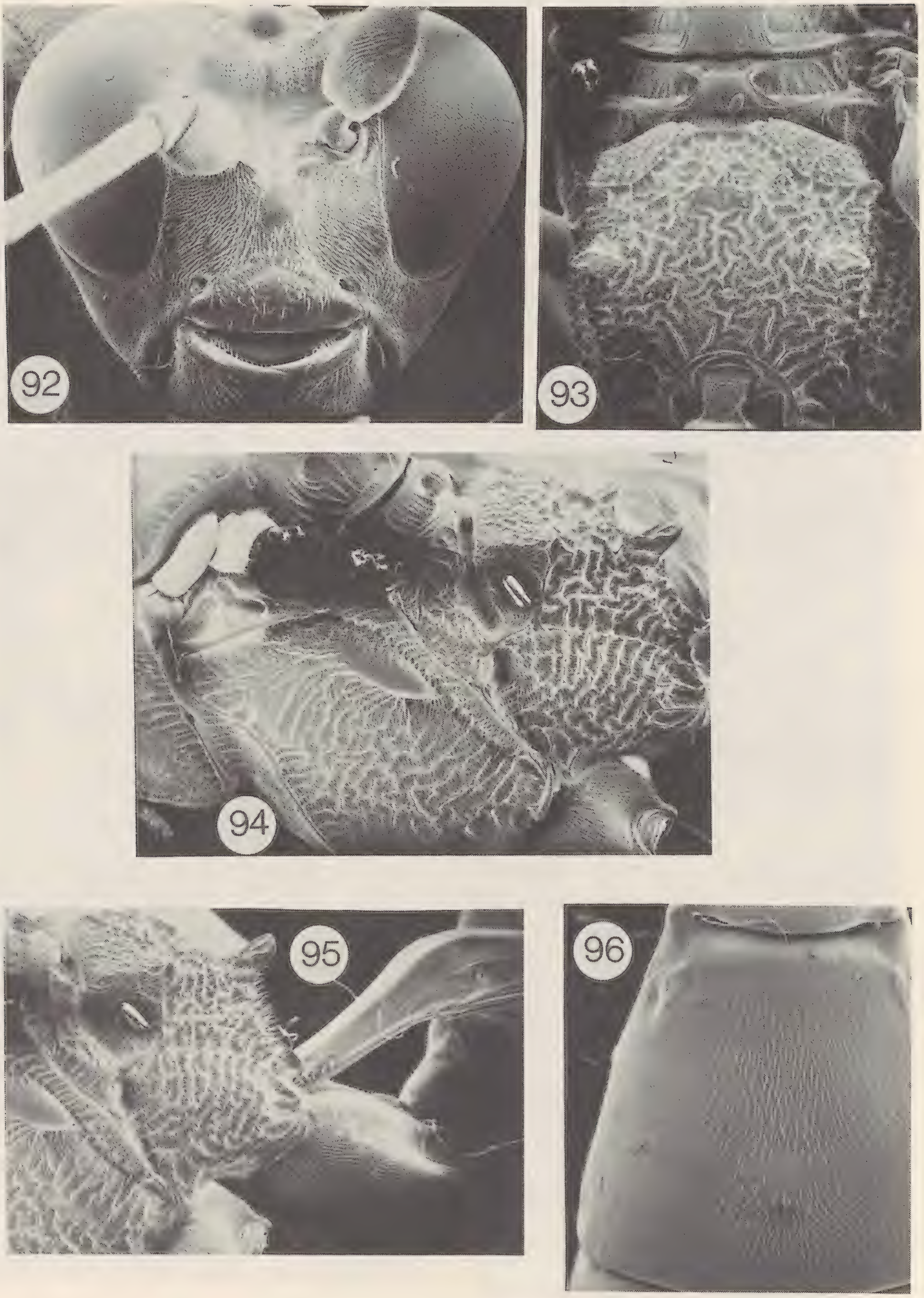
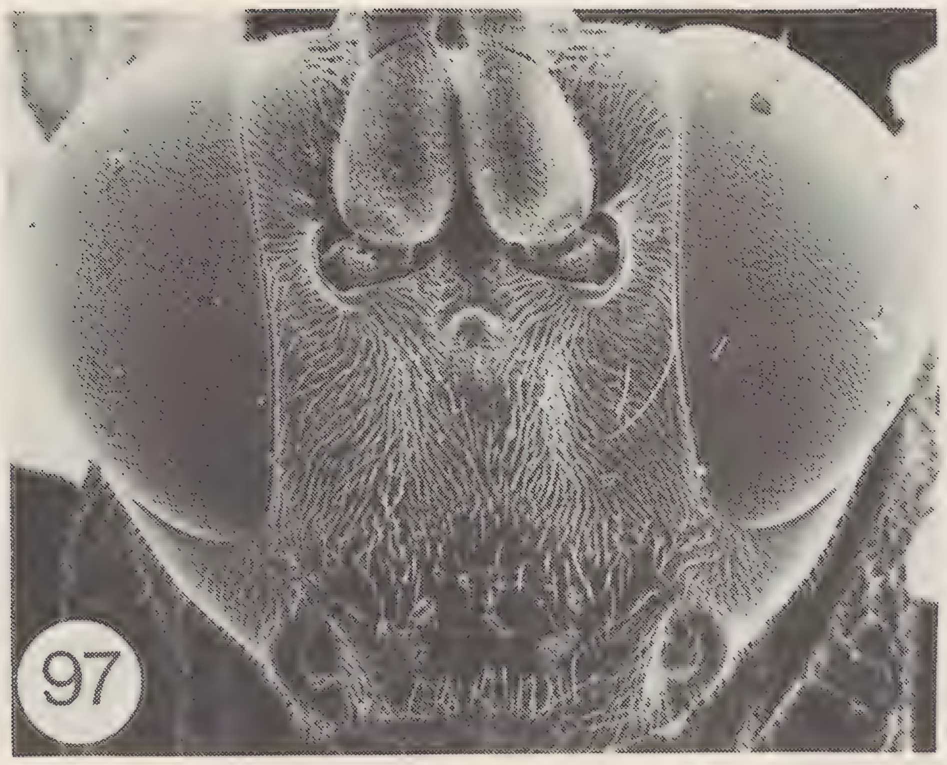
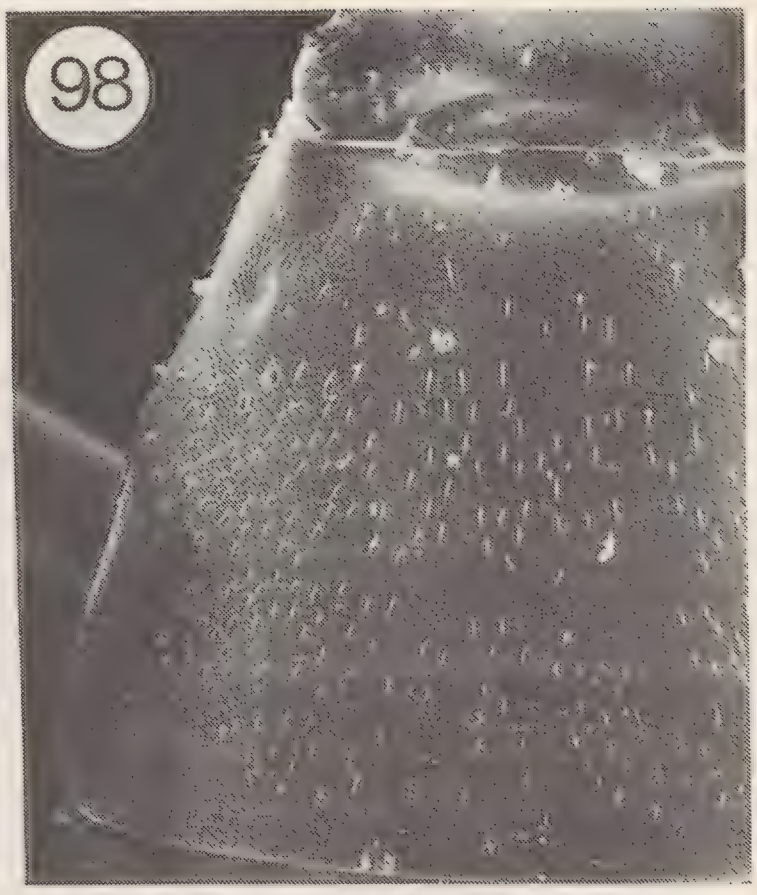
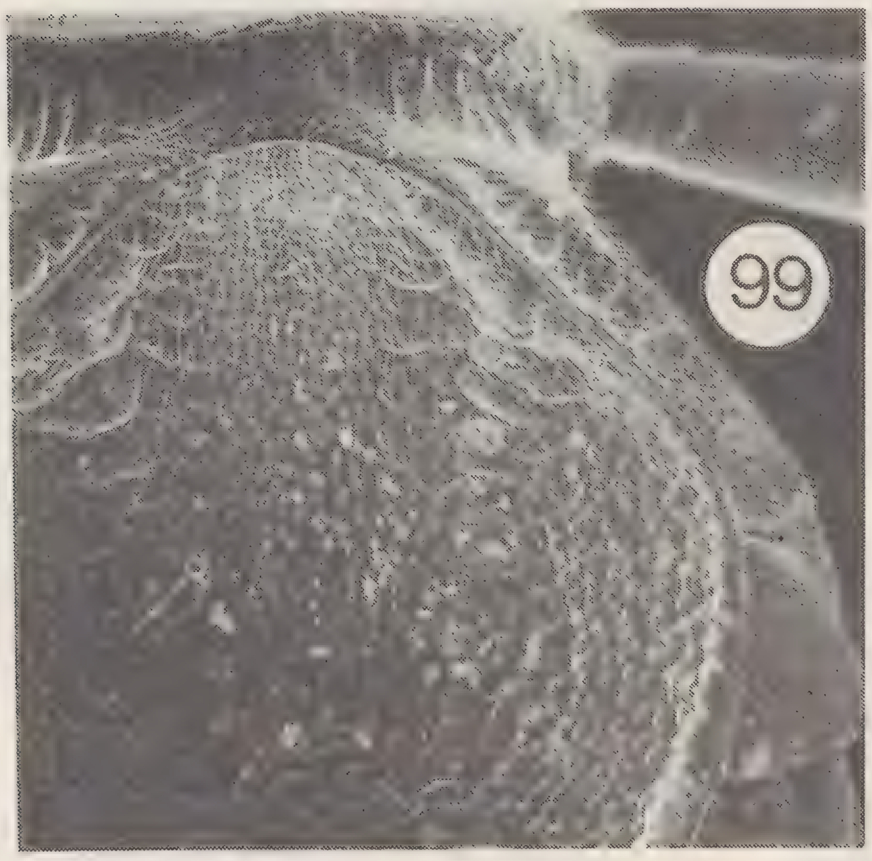
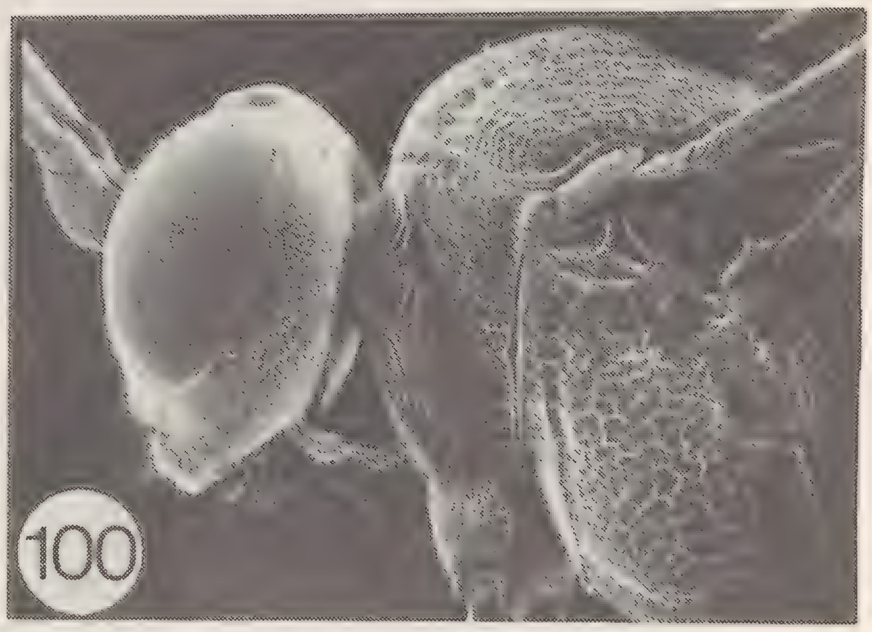


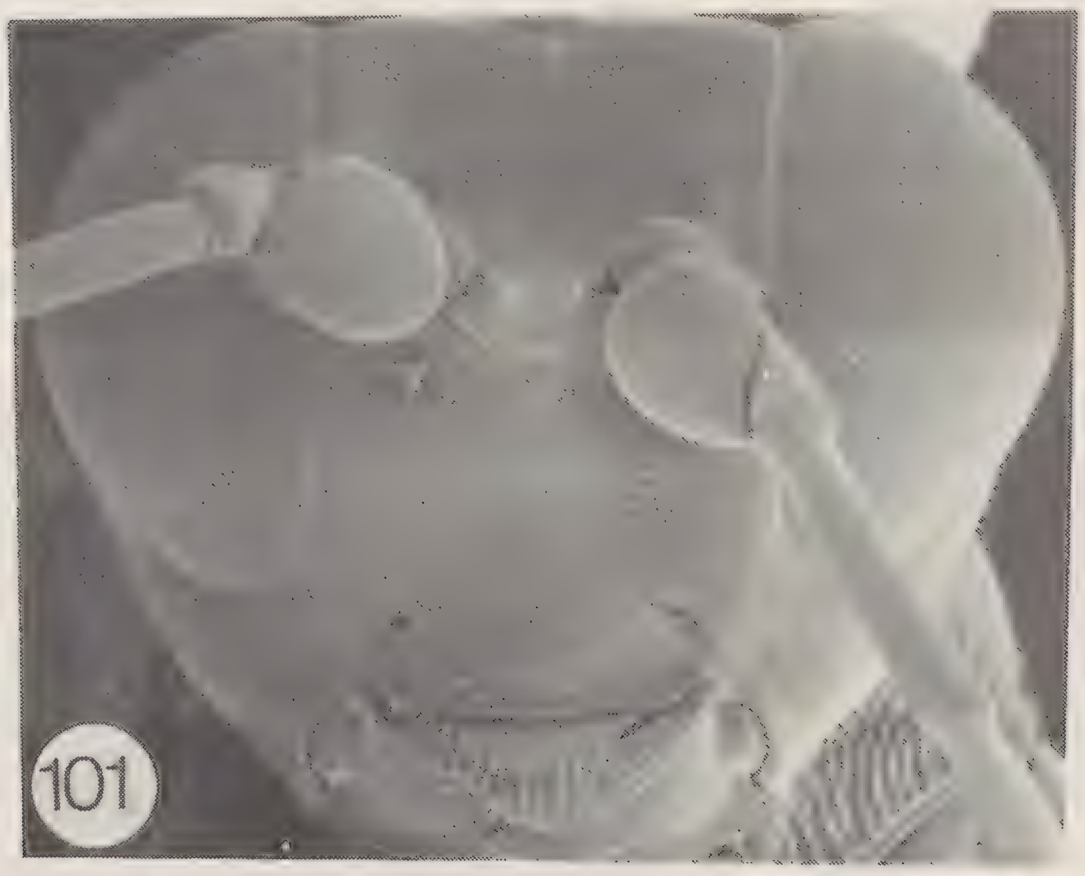
PLATE XVI. 92-96. Chilecryptus tetracanthus.











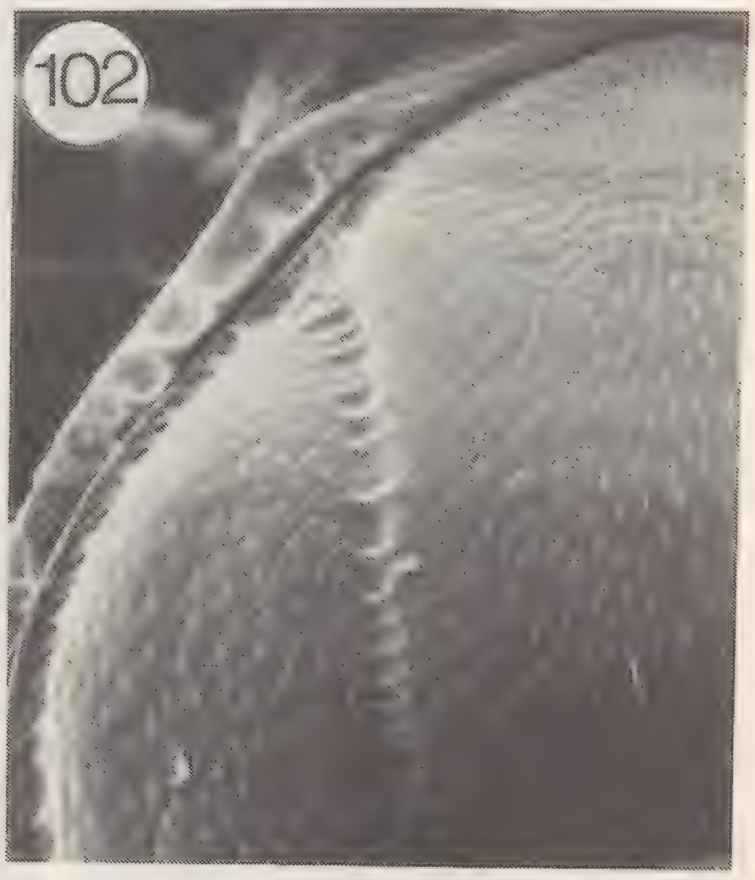
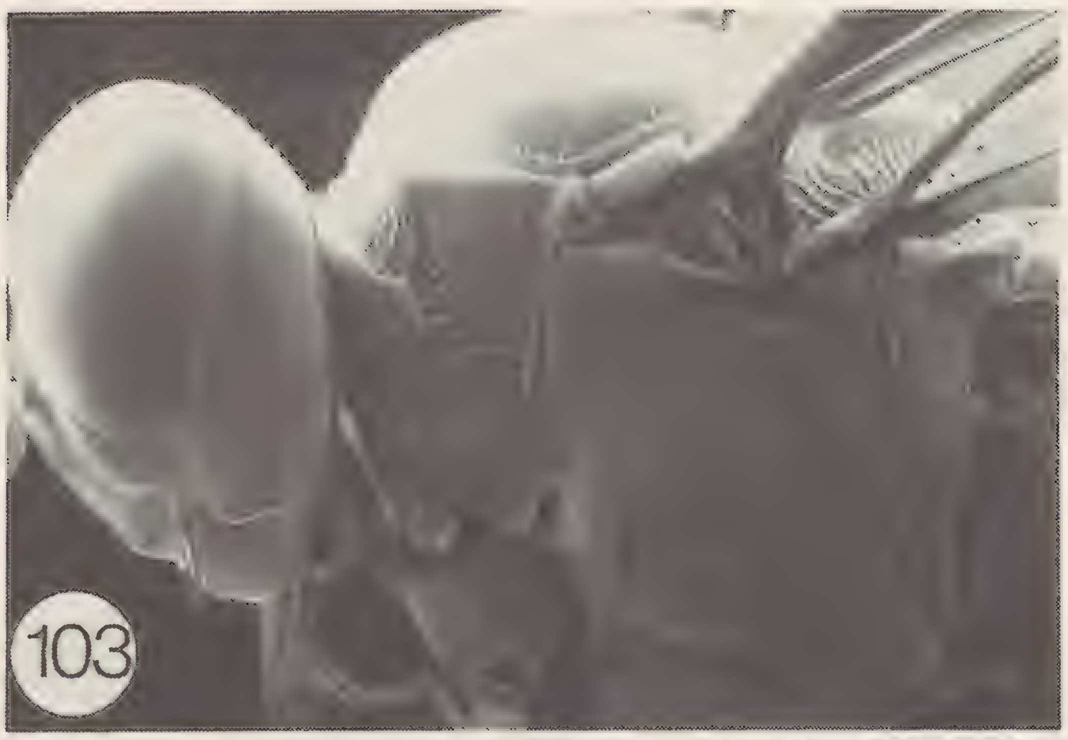
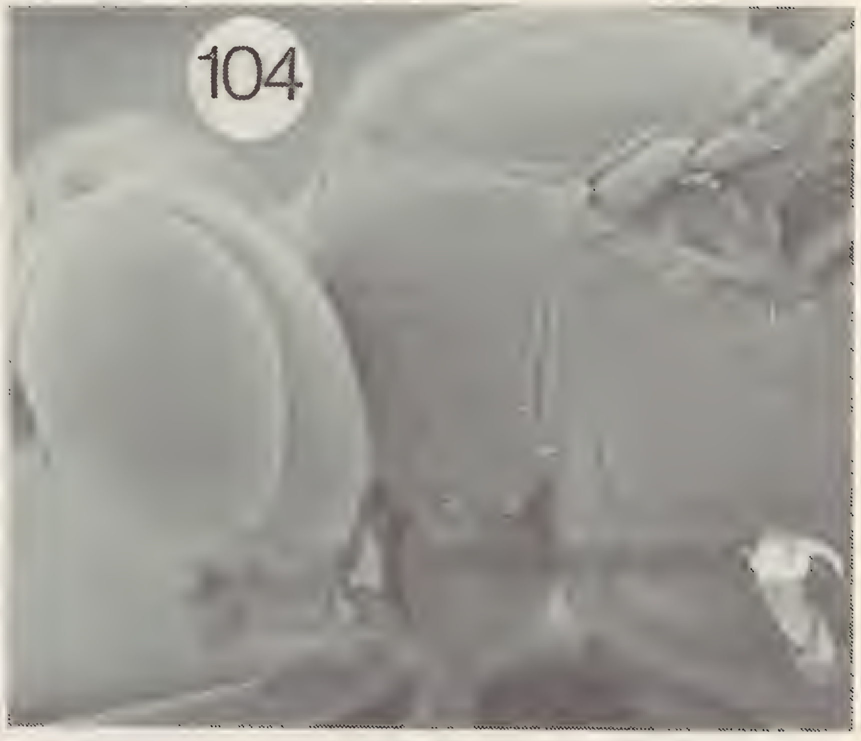
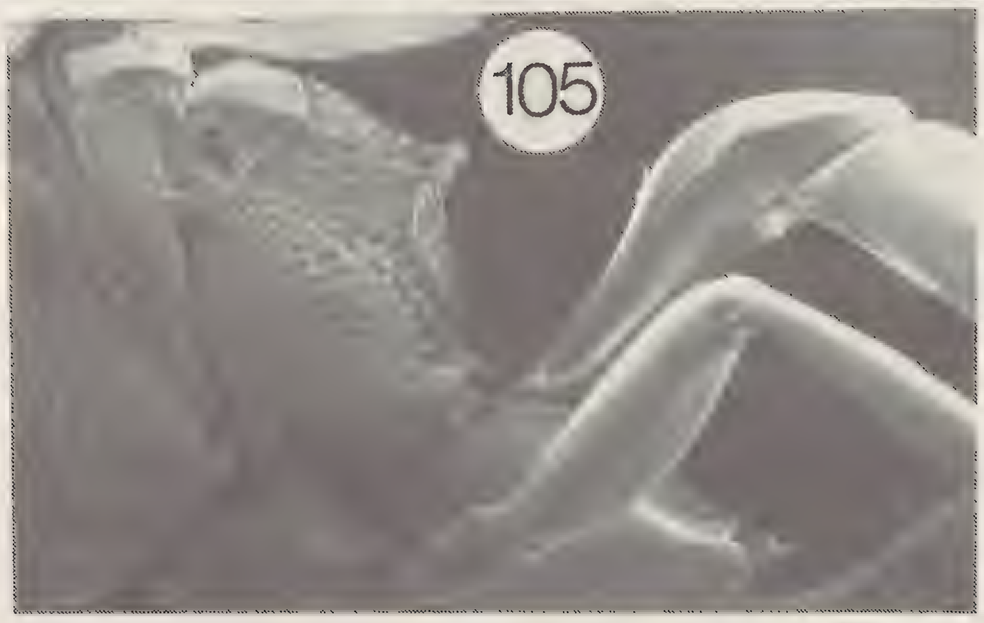
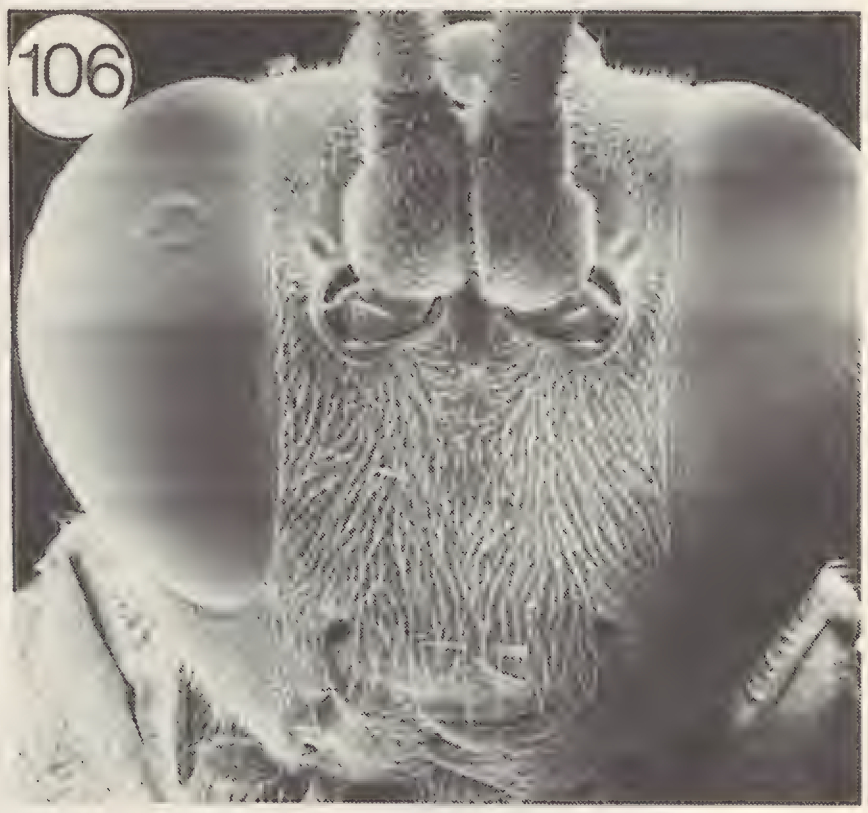


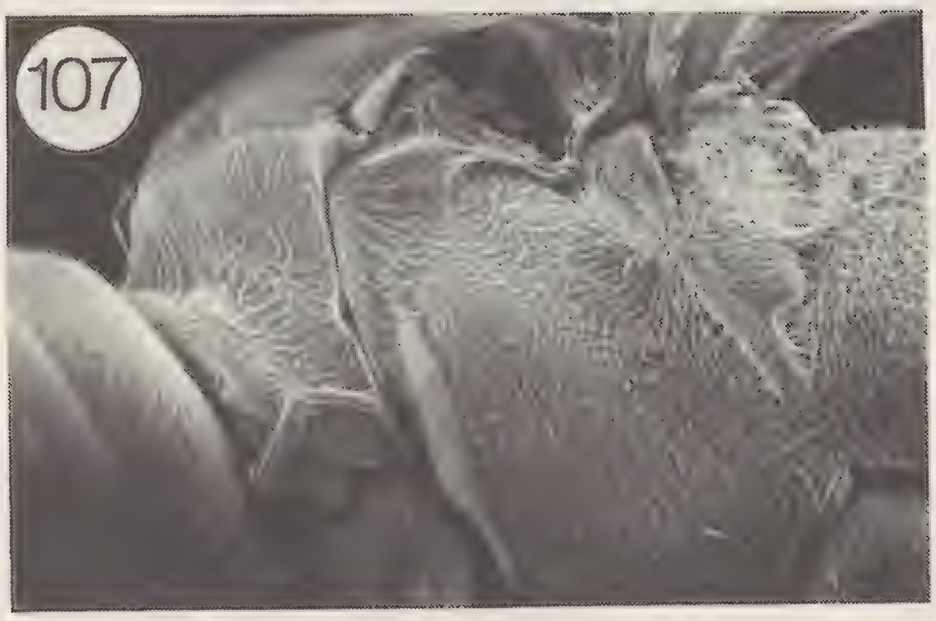
PLATE XVII. 97-100. Neocryptopteryx ocris. 101-102. Itamuton rufitibia

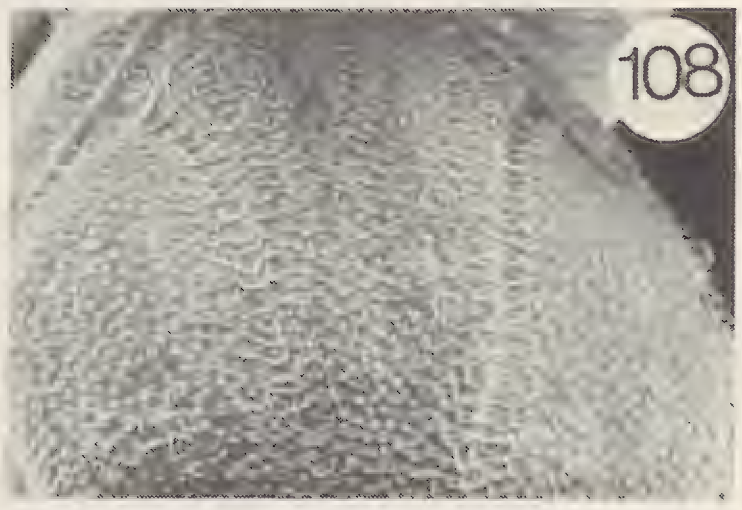


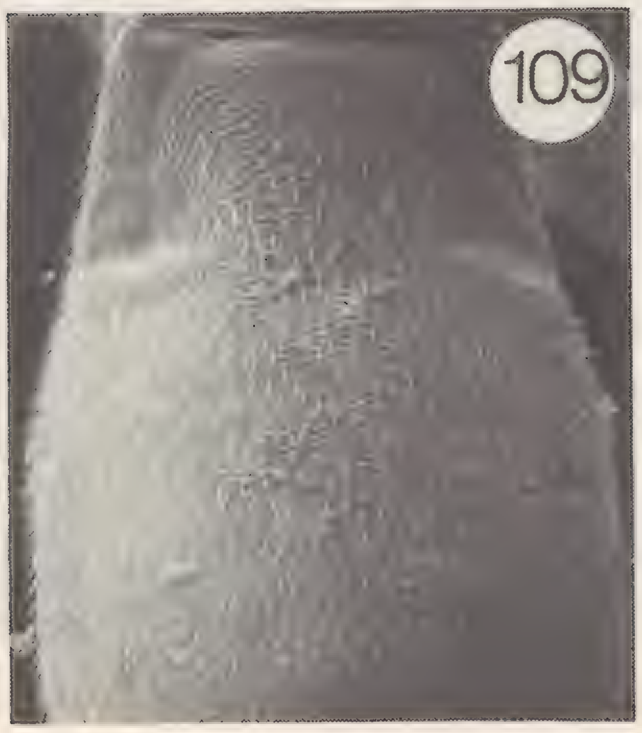


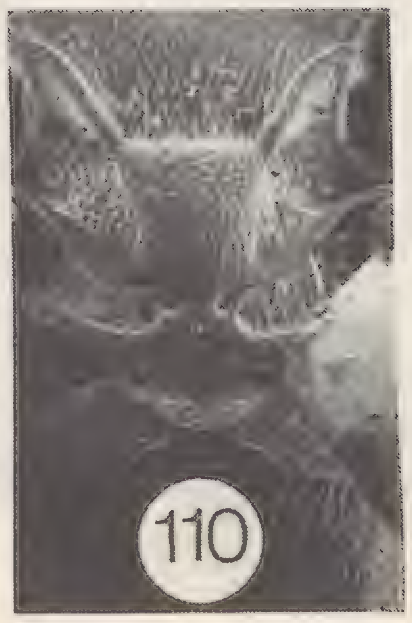












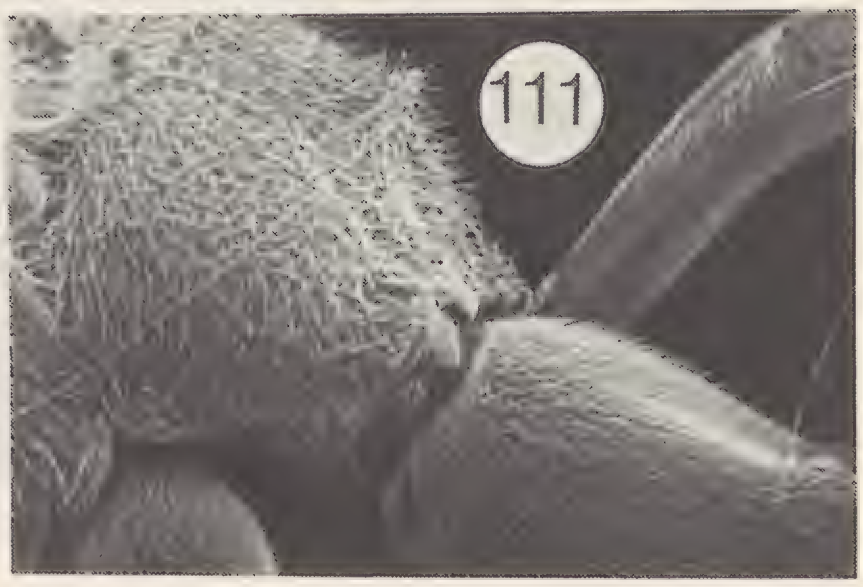


PLATE XVIII. 103. Itamuton rufitibia. 104. Phycitiplex doddi. 105. Itamuton rufitibia. 106-111. Myrmecacis probles.

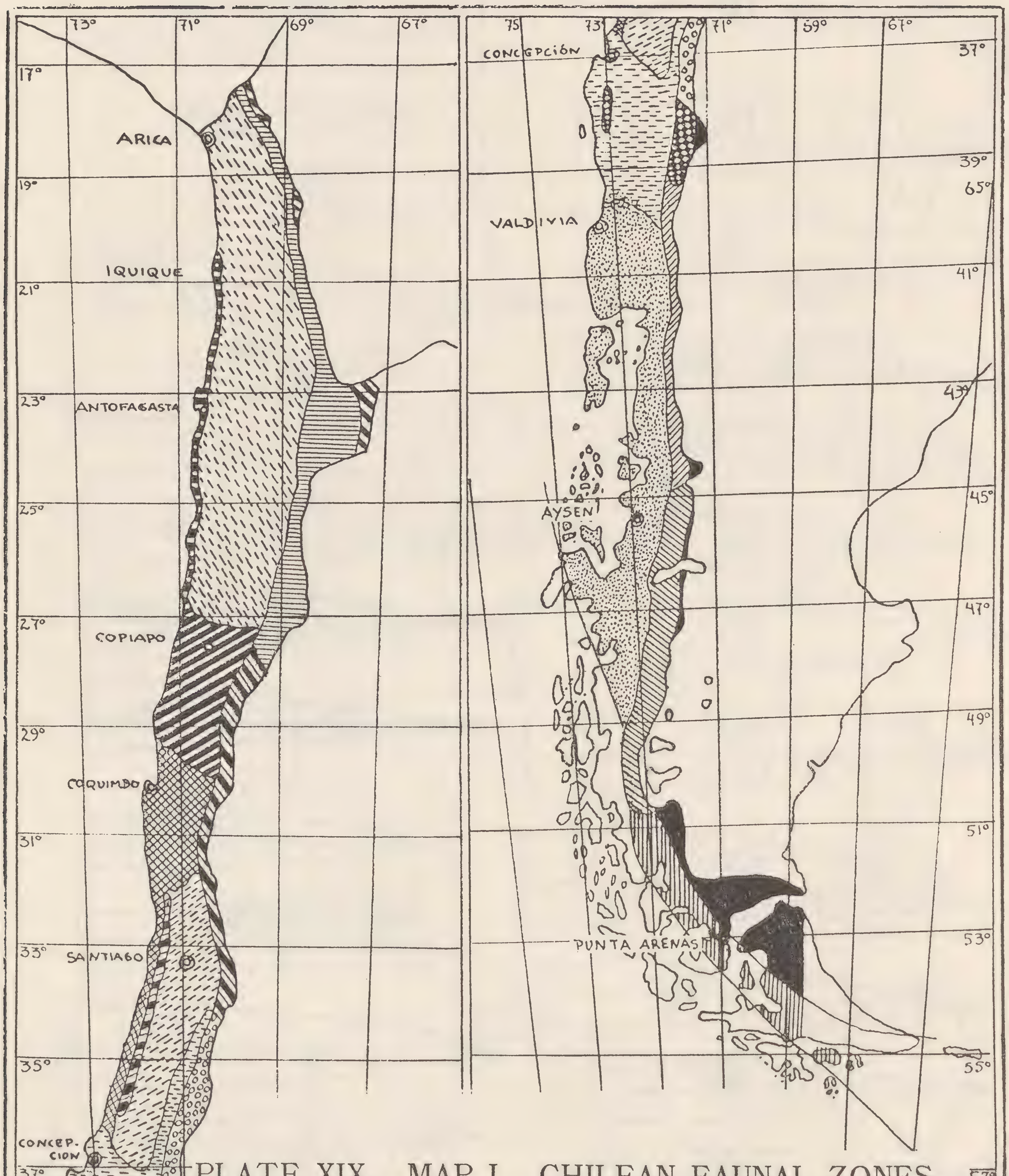


PLATE XIX. MAP I. CHILEAN FAUNAL ZONES

I	▧	High Plateau	VII	▧	Central Andean Cordillera	XIII	░	Valdivian Forest
II	▤	Northern Andean Cordillera	VIII	▨	Central Valley	XIV	▨	Valdivian Cordillera
III	░	Northern Desert	IX	▨	Central Coastal Cordillera	XVI	■	Patagonian Steppe
IV	▤	Northern Coast	X	▤	Northern Valdivian Forest	XV	▧	Aysén Cordillera
V	▨	Intermediate Desert	XI	○	Southern Andean Cordillera	XVII	▥	Magallanes Interoceanic Region
VI	▩	Coquimban Desert	XII	●	Pehuenar	XVIII	□	Southern Pacific Region

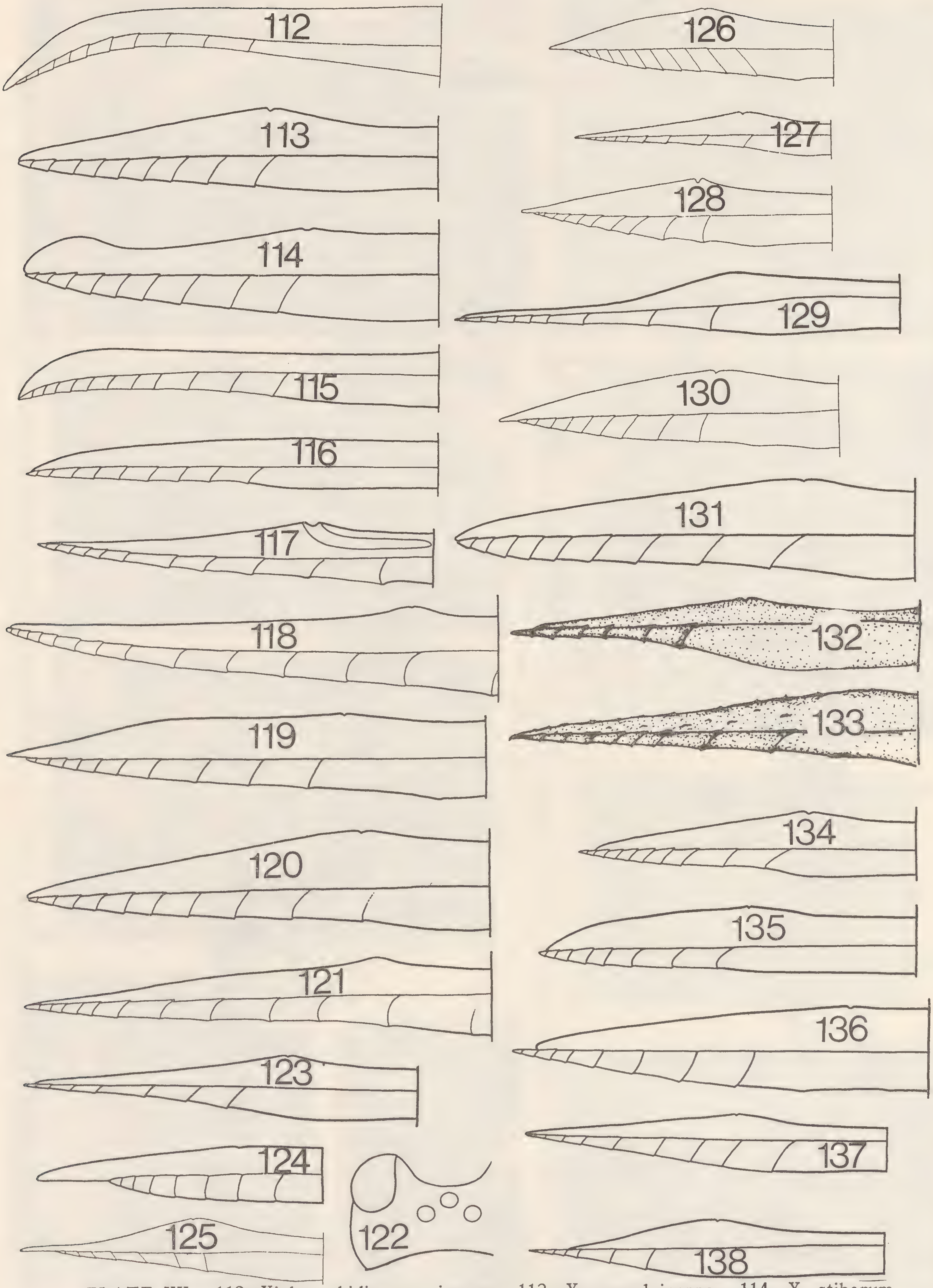


PLATE XX. 112. Xiphonychidion cyanipenne. 113. X. caeruleipenne. 114. X. stibarum. 115. X. admetum. 116. X. nerhysum. 117. Trachysphyrus metallicus 118. T. irinus. 119. T. venustus. 120. Xiphonychidion viduum. 121. Aeglocryptus nigricornis. 122. Trachysphyrus venustus. 123. Aglaodina cribricollis 124. Xylacis echthroides 125. Nothischnus riverai 126. Caenopelte palinorsa. 127. Anacis festiva. 128. A. varipes. 129. A. rufipes. 130. A. rubripes 131. Cosmiocryptus weyrauchi. 132. C. aricae. 133. C. leptaechma. 134. C. violaceipennis. 135. Chilecryptus tetracanthus. 136. C. ithyption. 137. Araucacis melanthes. 138. A. leptaulax.

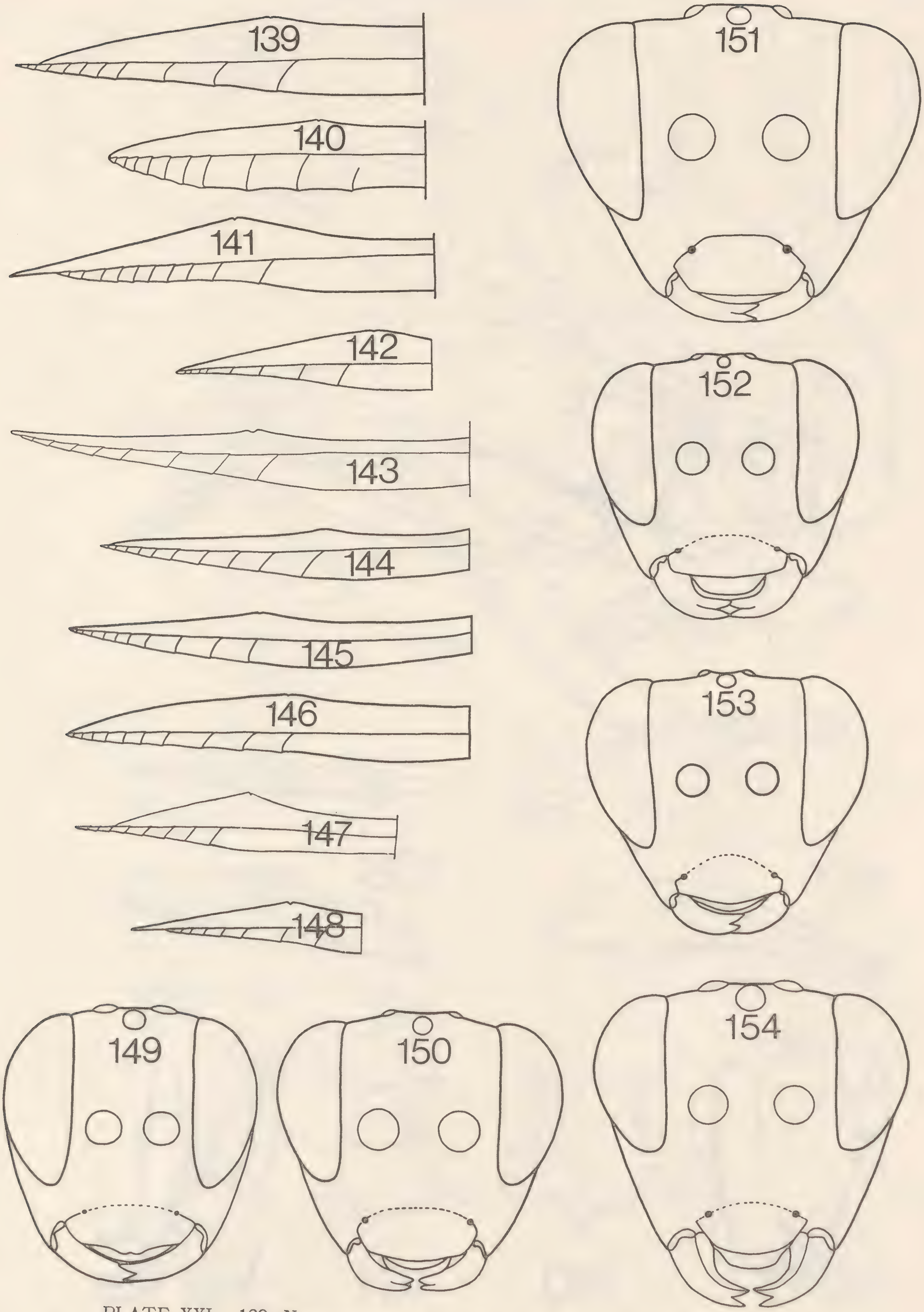


PLATE XXI. 139. Neocryptopteryx hypodyneri. 140. N. oedipus. 141. N. metriurus. 142. Oecetiplex borsani. 143. Hypsanacis hoplites. 144. H. paradeisus. 145. Itamuton magallanes. 146. I. rufitibia. 147. Anacis stangeorum. 148. Myrmecacis metargas. 149. Trachysphyrus venustus. 150. T. imperialis. 151. Aglaodina hyperbasa. 152. Aeglocryptus nigricornis. 153. A. viridis. 154. Trachysphyrus peñai.

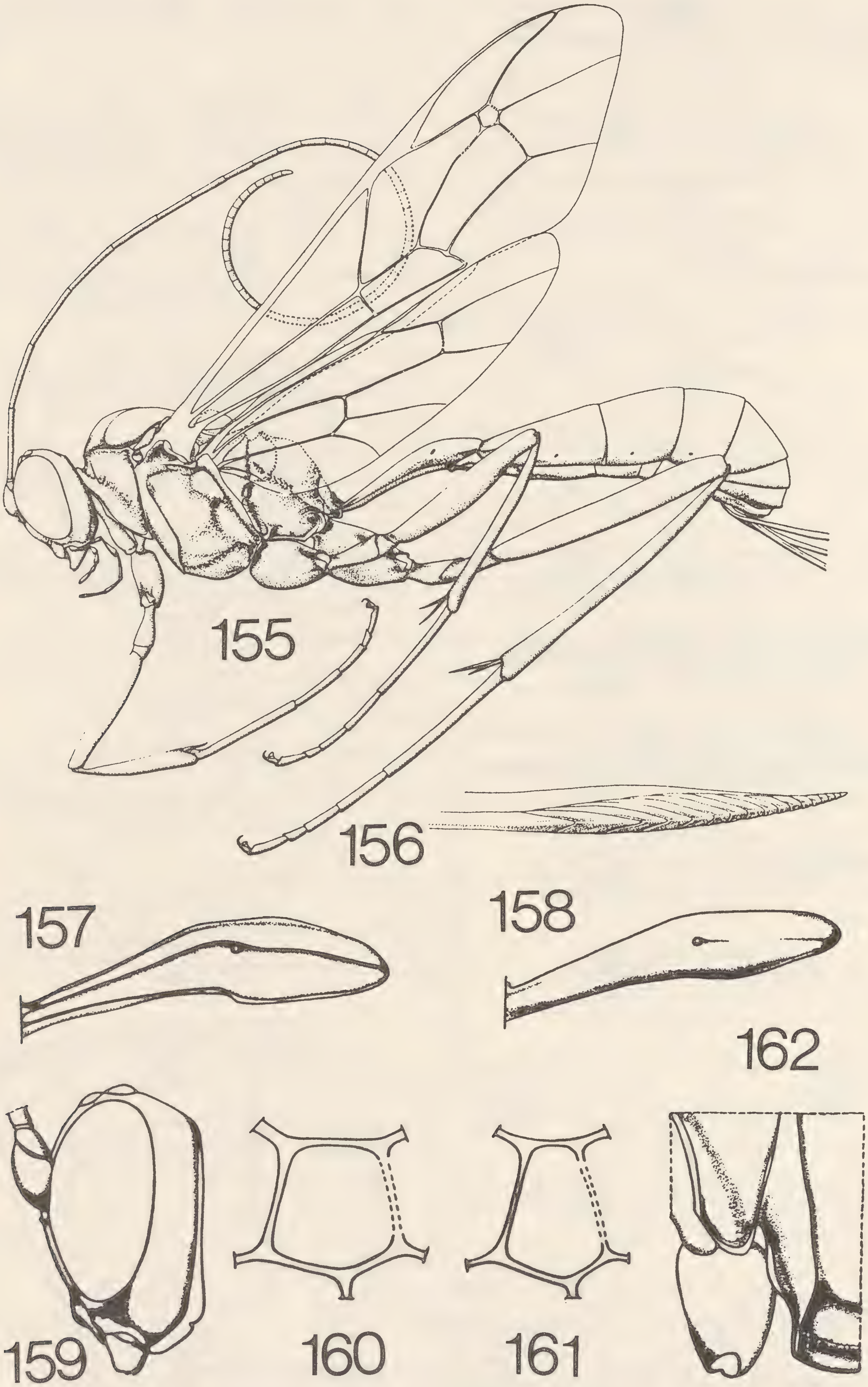


PLATE XXII. 155-156. Dotocryptus bellicosus. 157. D. eoeus. 158. D. boreas. 159. D. pedisequus. 160. D. eoeus. 161. D. zephyrus. 162. D. pedisequus.

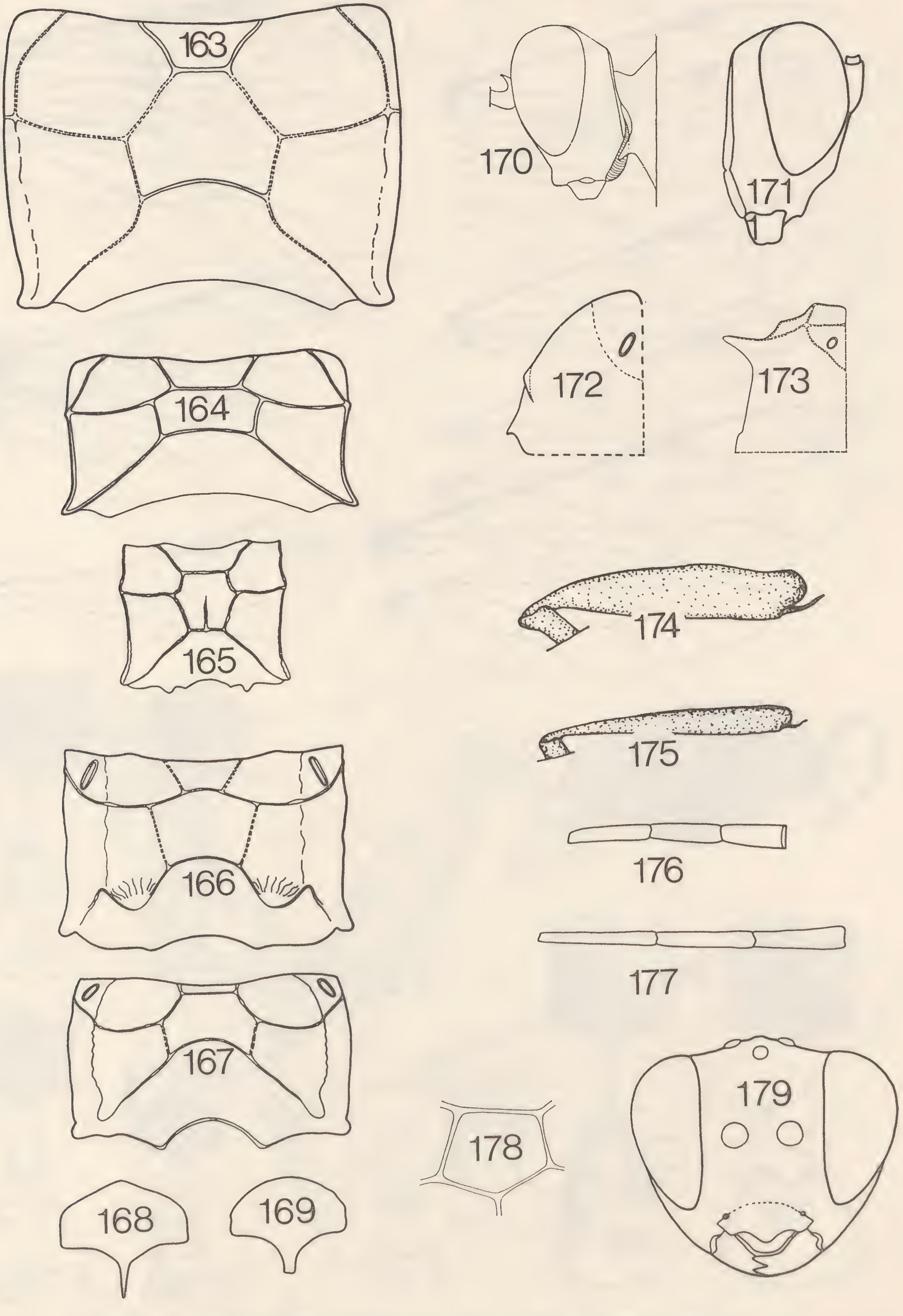


PLATE XXIII. 163. Trachysphyrus agenor. 164. T. peñai. 165. Aglaodina daseia. 166. Itamuton rufitibia 167. Oecetiplex borsani. 168. Trachysphyrus agenor. 169. T. irinus. 170. Periplasma tanaum. 171. Araucacis melanthes. 172. Phycitiplex doddi. 173. Hypsanacis hoplites. 174. Cosmiocryptus aricae. 175. C. leptaechma. 176. Trachysphyrus agenor. 177. T. irinus. 178. Anacis hercana. 179. Xylacis echthroides.

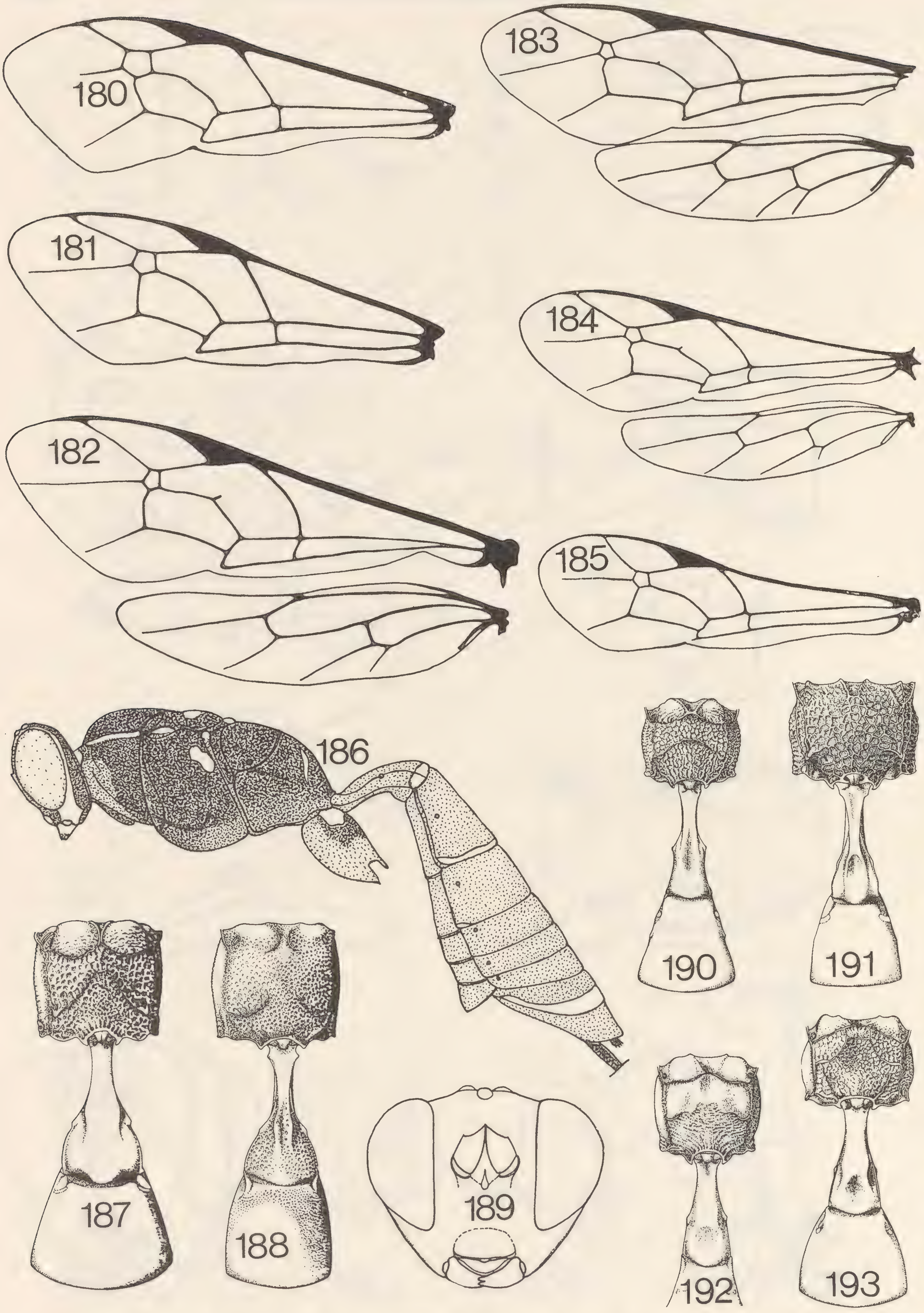


PLATE XXIV. 180. Picrocryptoides willinki. 181. Aeliopotes paitensis. 182. Myrmecacis metargas. 183. Itamuton rufitibia. 184. Anacis rubripes. 185. Dochmidium sp. 186. Cyclaulus eremia. 187. Aeglocryptus cleonis. 188. Picrocryptoides willinki. 189. Anacis stangeorum. 190. Sciocryptus lachnaeis. 191. Xiphonychidion cyanipenne. 192. Anacis festiva. 193. Caenopelte palinorsa.

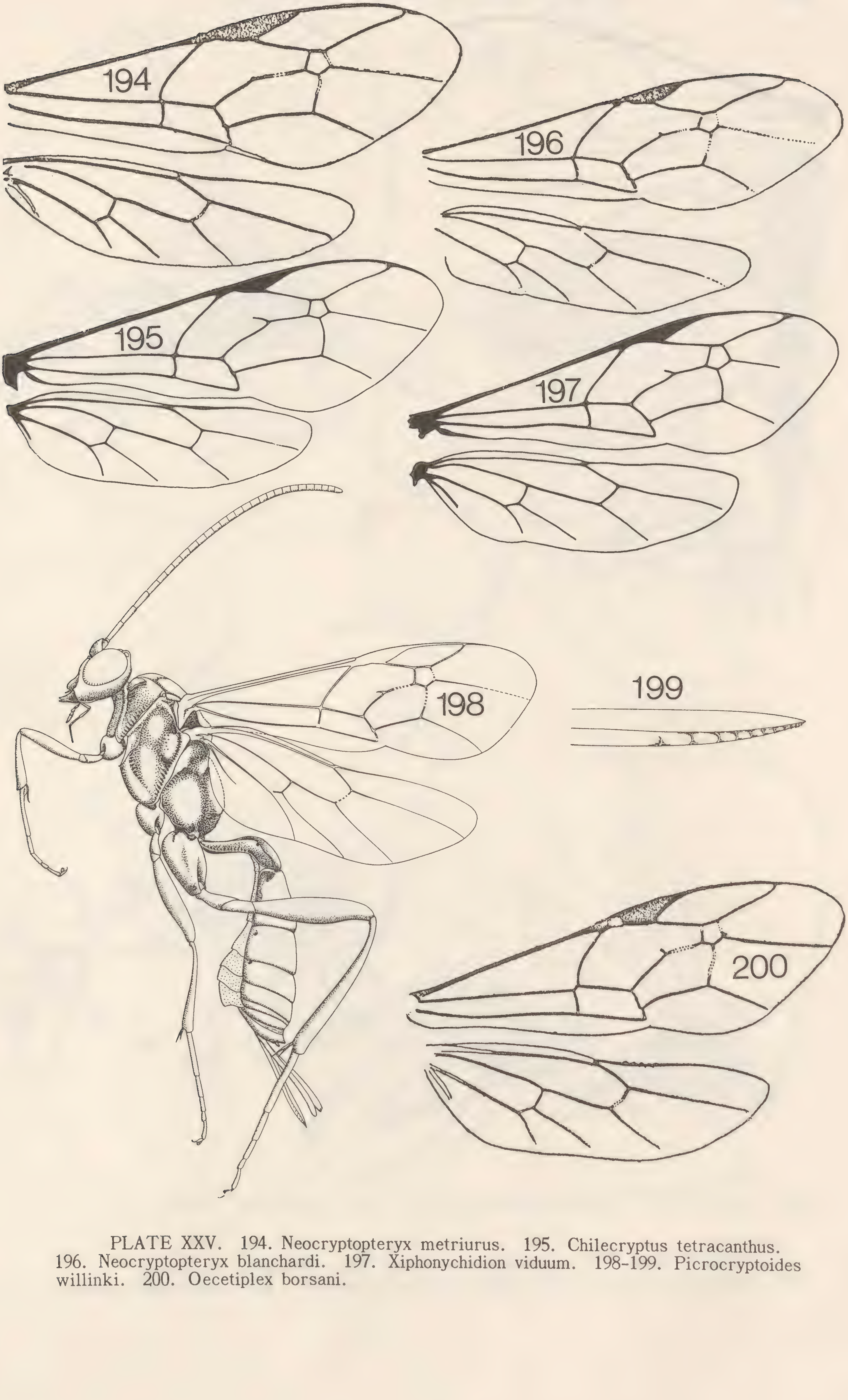


PLATE XXV. 194. Neocryptopteryx metriurus. 195. Chilecryptus tetracanthus. 196. Neocryptopteryx blanchardi. 197. Xiphonychidion viduum. 198-199. Picrocryptoides willinki. 200. Oecetiplex borsani.

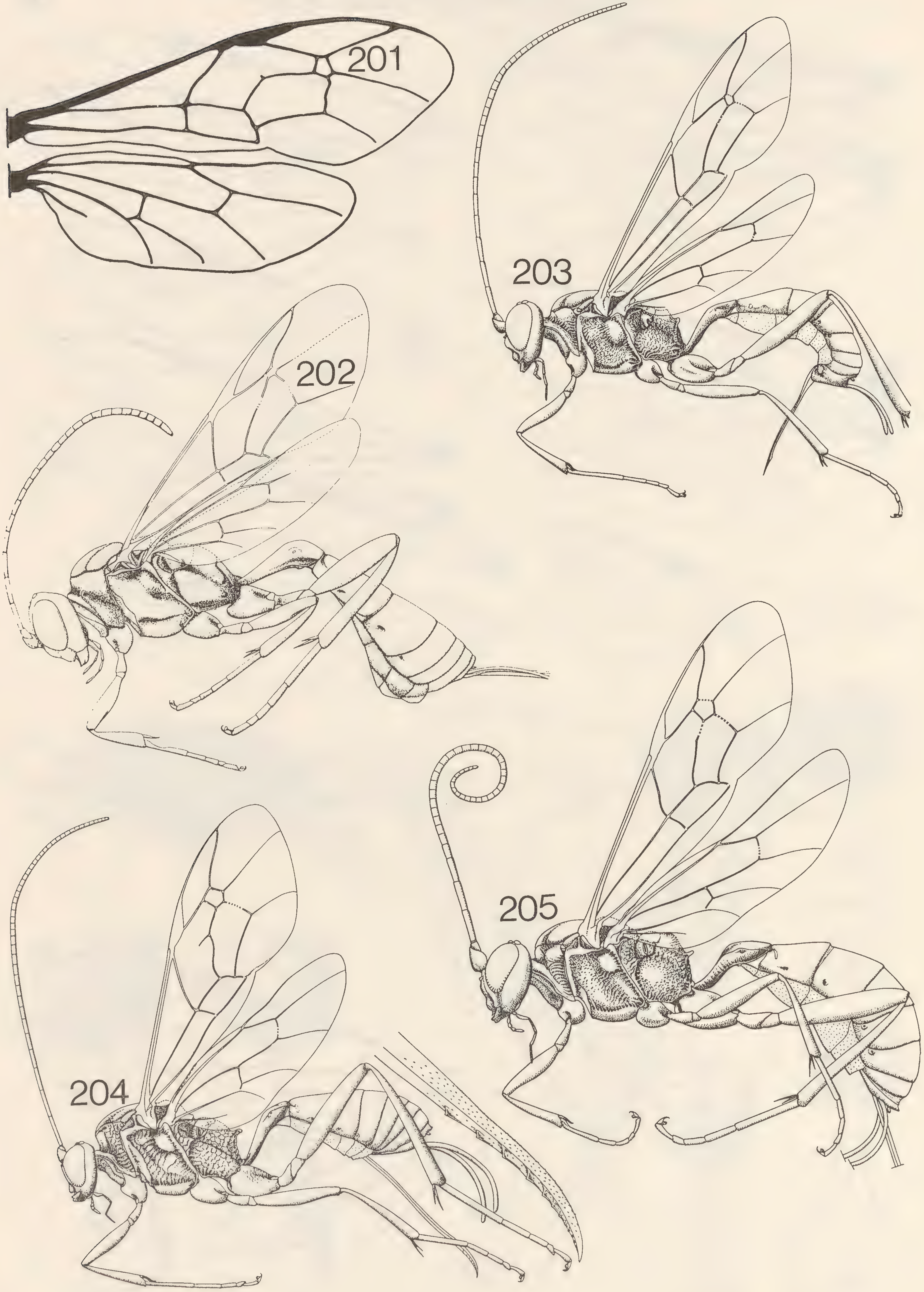


PLATE XXVI. 201. Aglaodina cribricollis. 202. Mesostenus transfuga. 203. Sciocryptus lachnaeis. 204. Xiphonychidion cyanipenne. 205. Aeglocryptus cleonis.

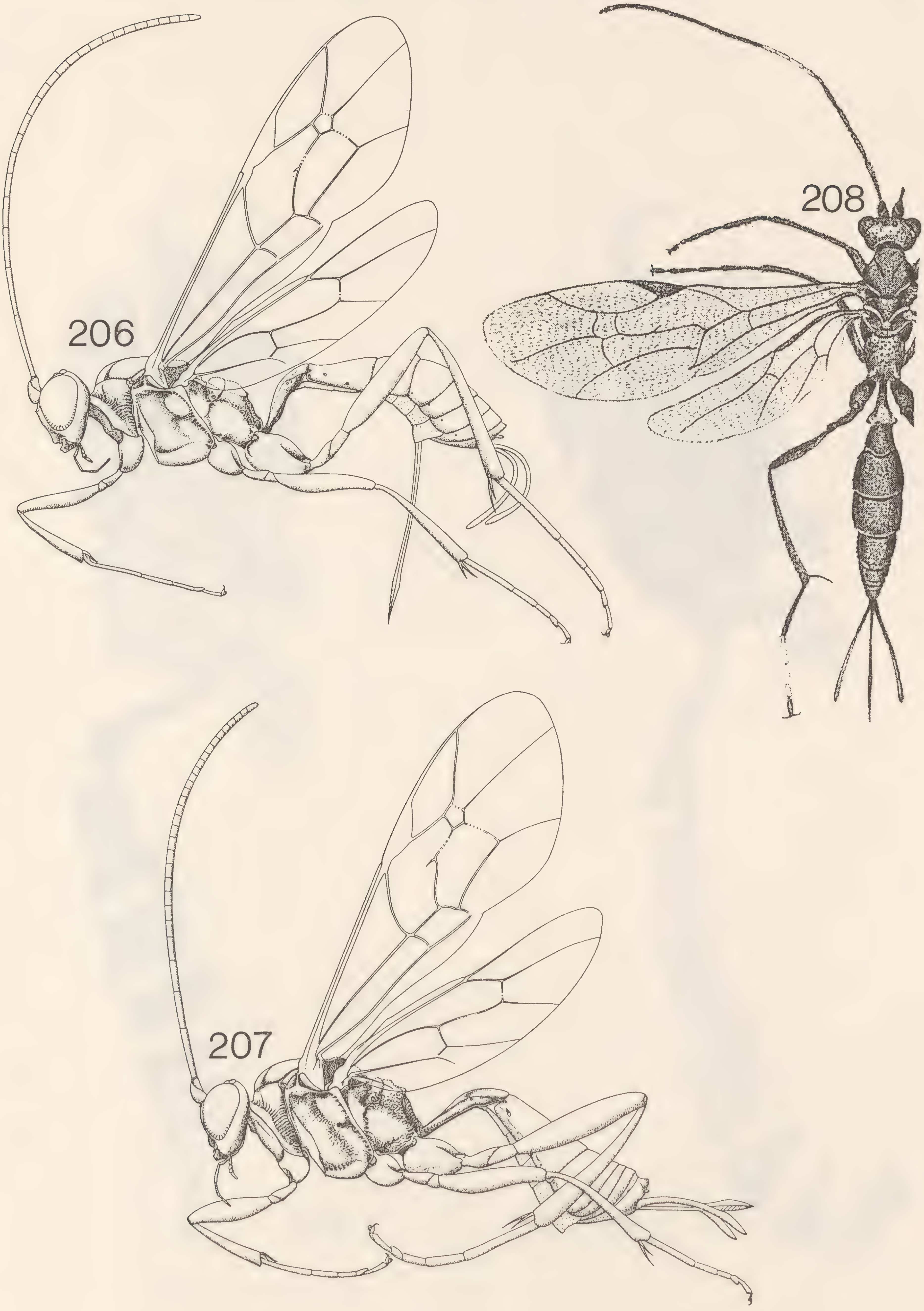
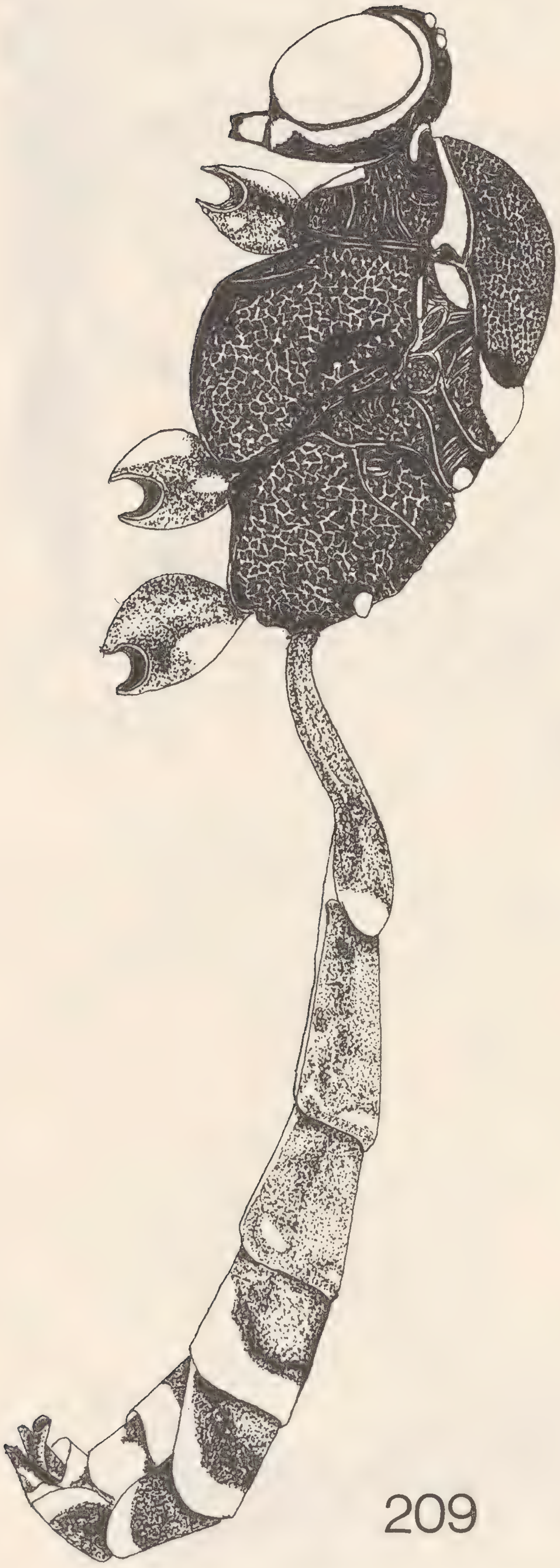


PLATE XXVII. 206. Anacis festiva. 207. Caenopelte palinorsa. 208. Anacis rufipes.



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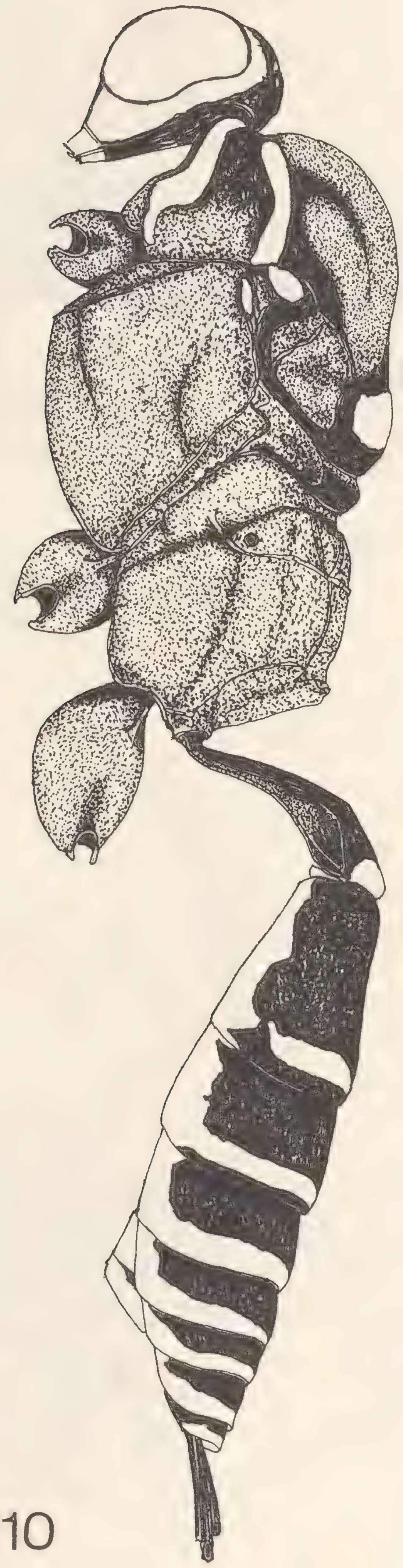

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PLATE XXVIII. 209. Itamuton occidens. 210. Anacis festiva.